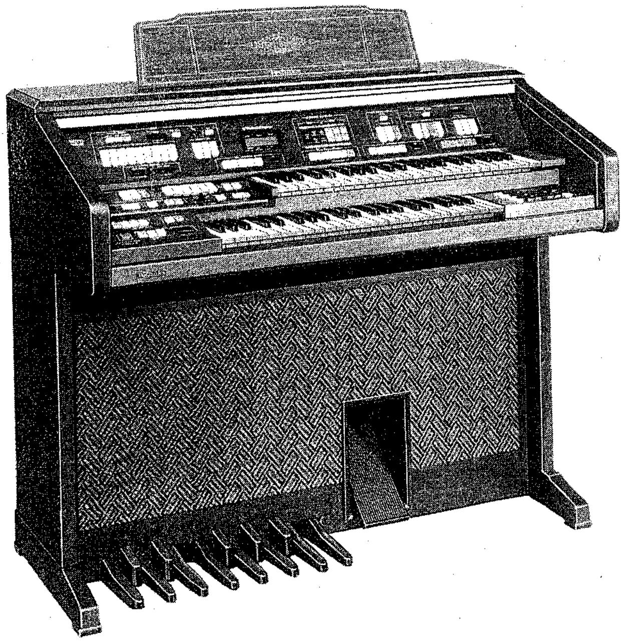
Service Manual

Electronic Organ

SX-E55

(EN), (ES), (ED), (EI), (EH), (EB), (EF), (EG), (EW), (EL), (EP), (MC), (XT), (EK), (XL), (XR), (XS), (X), (XX), (XV)



AREAS

(EN): Norway
(ES): Sweden
(ED): Denmark
(EI): Italy
(EH): Holland
(EB): Belgium
(EF): France
(EG): Garmany, Austria
(EW): Switzerland
(EL): Finland
(EP): Spain
(EK): the United Kingdom
(MC): Canada
(XT): Taiwan
(XL): New Zealand
(XR): Australia
(XS): Malaysia, Singapore, South Africa
(X): the Middle Near East, Hong Kong, the Philippines, Indonesia
(XV): Venezuela, Ecador, Panama
(XX): Peru, Chile

Specifications

Keyboards	
• Upper Manual:	44 Keys ($3^2/_3$ Octaves)
• Lower Manual:	44 Keys ($3^2/_3$ Octaves)
• Pedal Keyboard:	13 Keys (1 Octave)
Musical Display:	FSC, VSC, PCC, Harmonic Coupler, Techni-Chord, Transpose, APC, Tempo, Chord
Fullband Setting Computer (FSC):	Record, $\boxed{1}\sim\boxed{8}$ (lower keyboard)
Voice Setting Computer (VSC):	Record, I, II, III, IV, V, Cancel, 20 Combination VSC (lower keyboard: 1~20)
Orchestral Conductor	
• Upper:	Upper Tab Voices, Orchestral Presets, Percussive Presets, Solo Synthe Presets, String Ensemble
• Lower:	Lower Tab Voices, Orchestral Presets, Percussive Presets, Solo Synthe Presets, String Ensemble
Upper Tones	
• Tab Voices:	Flute 16′, 8′, $5^1/_3$′, 4′, $2^2/_3$′, 2′, 1′, String 8′, String 4′...Slow Attack, Upper Volume
Percussive Tone:	4′, $2^2/_3$′, Click...Full, Long
Harmonic Coupler:	$2^2/_3$′, Program, Cancel, Record
• String Ensemble:	Upper Volume
• Percussive Presets: (Upper & Lower)	Piano, Harpsichord, Vibraphone, Guitar, Banjo...Full
• Orchestral Presets: (Upper & Lower)	Trombone, Saxophone, Accordion, Clarinet, Wah Brass...Full
• Solo Synthe Presets: (Upper & Lower)	Trombone, Saxophone, Clarinet, Pan Flute, Synthe Chopper...Volume
Lower Tones	
• Tab Voices:	Flute 8′, 4′, String 8′...Lower Volume
Harmonic Coupler:	2′
• String Ensemble:	Lower Volume
• Percussive Presets:	(Upper & Lower) } common used for upper and lower tones
• Orchestral Presets:	(Upper & Lower) } common used for upper and lower tones
• Solo Synthe Presets:	(Upper & Lower) } common used for upper and lower tones
Bass Tones:	Bass 16′, Bass 8′, Electric Bass, Acoustic Bass, Tuba, Synthe Bass...Volume
Effects	
• Sustain:	Upper ....On, Length Control U & L Percussive Presets ...On, Length Control Lower ....On, Length Control Bass.....................Length Control
• Reverb:	Reverb Depth Control
• Celeste:	U. Tab Voices, U & L Orchestral Presets, U & L Solo Synthe Presets, L. Tab Voices
• Multi-Tremolo/Vibrato:	Chorus/Tremolo, Vibrato...U. Tab Voices L. Tab Voices
• Glide:	Foot SW.
Techni-Chord:	On, Close/Open
Drum Percussion	
• Rhythm selectors:	March, Shuffle, 8 Beat, Funk Rock, Ballad, Swing Rock, Rumba, Guaracha, Mambo, Cha-Cha, Waltz, Swing I, Swing II, 16 Beat, Samba Rock, Disco I, Disco II, Bossanova I, Bossanova II, Samba, Baion, Tango, Jazz Waltz
• Arrange Percussion:	I, II, III
• Drum Percussion Controls:	Volume, Mellow, On—Start/Stop, Synchro, Glide/Rhythm—Foot SW., Tempo Control, Tempo set
• Fill-in & Intro:	I, II, Solo
Rhythmic Orchestra:	Rhythmic, Melodic...I/II, Volume
Program Chord Computer (PCC):	Record, PCC, Cancel
• Chord Composer:	⊢𝄽⊣, 𝄋 𝄌, ◀, DS, ▶, —⊣, ⊢⌒⊣, ⊢⊢⊣, ⊢⌒⊣
• Auto Play Chord:	Fingered, Memory, Cancel
Transpose:	≁ (transpose), Record, $\boxed{G}$ ~ $\boxed{C}$ ~ $\boxed{F^\sharp/G^\flat}$
Tuning:	Free Set, Pitch Control (–, +)
Others:	Power Switch, Main Volume, Expression Pedal, Headphone Jack, Microphone Jack (input level: 7.5mV, 10kΩ), Microphone Volume, AUX Jack, (input level: 150mV, 10kΩ), Line out 2ch/3ch (output level: 300mV, 600Ω)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Speakers: 30cm 6Ω×1, 20cm 4Ω×2, 6.5cm 6Ω×2
Maximum Output: 90W (2-channel)
Power Requirement: 250W, AC 120/220/240V, 50/60Hz
AC 220V, 50/60Hz......Europe
300VA, AC 120V, 60Hz ....North America, Taiwan
Cabinet Dimensions: 114.6cm(W)×60.3cm(D)×103.1cm(H)
Net Weight (without bench): 77kg (169.8 lbs.)

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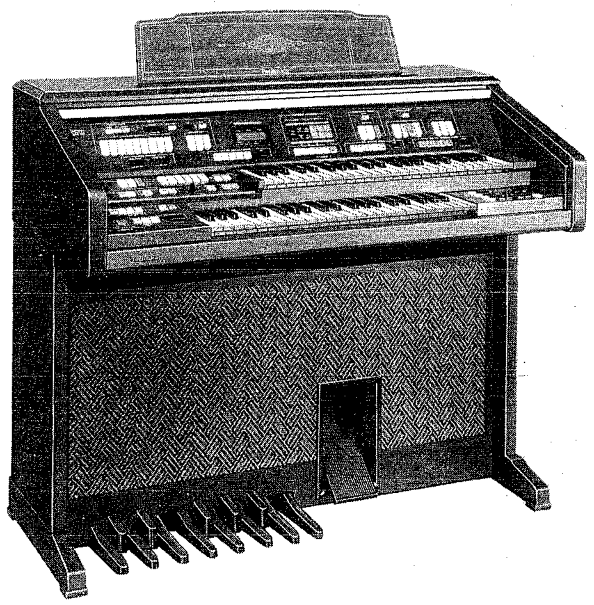
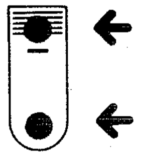
ARRANGEMENT OF CONTROL PANEL



All buttons and tablets are equipped with LEDs which light up when in operation.

Tablet



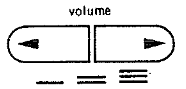
- Turns off when this part is pressed.
- The LED lights up and the tablet turns on when this part is pressed.

Controls

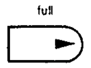
The volumes and effects on the organ are controlled by 2-or 3-stage buttons, except for rhythm tempo controls.

Volume

- Pressing the right button increases the volume and the LED on the button lights up.
- Pressing the left button decreases the volume and the LED on the button lights up.
- If you press both buttons simultaneously, the LEDs go out and the volume returns to the normal (intermediate) level.

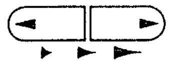


- Pressing this button increases the volume and the LED on the button lights up.
Pressing it again causes the LED to go off and the volume to return to the normal level.



Effect

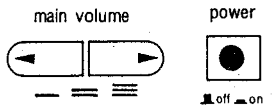
- Press the right button to increase such effects as Sustain, and the left button to decrease them. If you press both buttons simultaneously, the effects return to the intermediate levels.

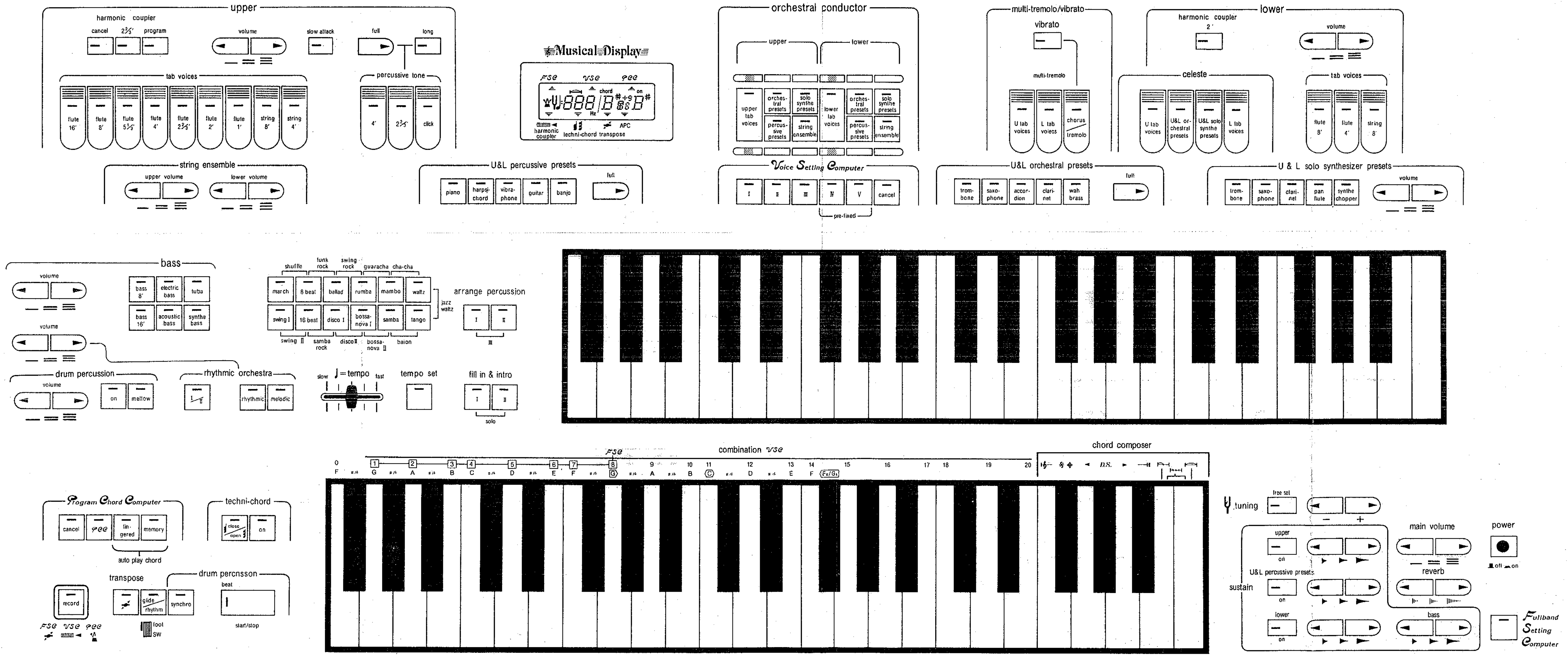


Power/Main Volume Controls

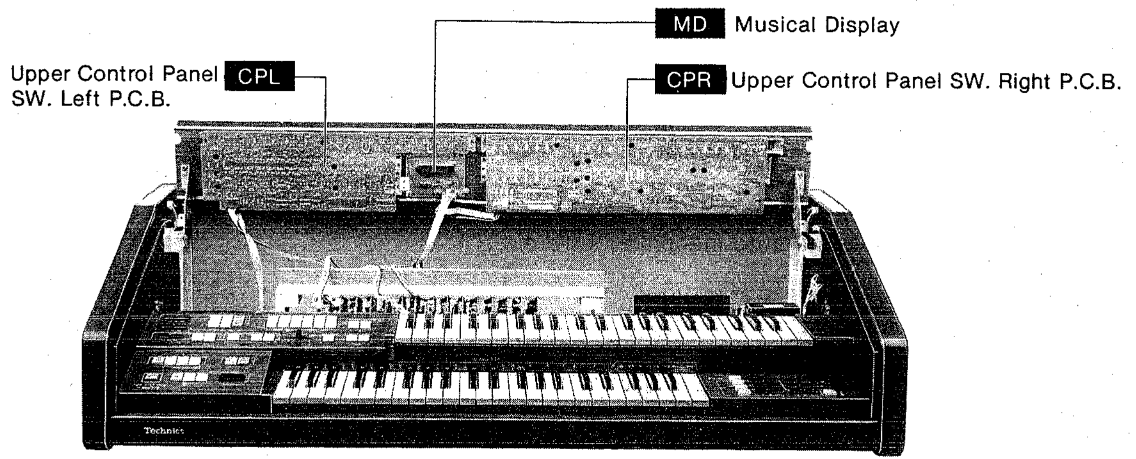
Pressing the power switch turns the organ on.

Main Volume adjusts the loudness of the entire organ.

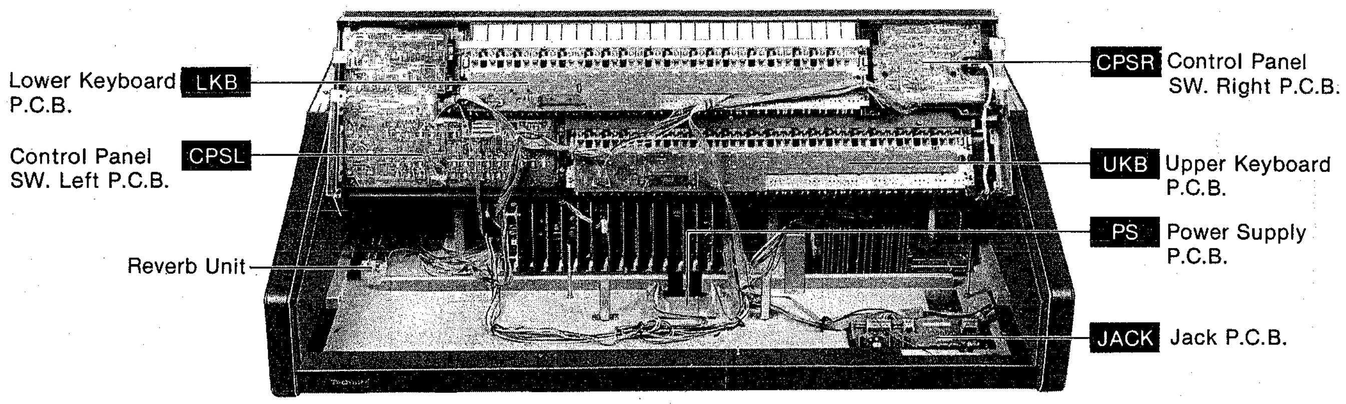

main volume
power
off on


upper
harmonic coupler
cancel
2⅔'
program
volume
slow attack
full
long
tab voices
flute 16'
flute 8'
flute 5⅓'
flute 4'
flute 2⅔'
flute 2'
flute 1'
string 8'
string 4'
percussive tone
4'
2⅔'
click
string ensemble
upper volume
lower volume
Musical Display
FSC
VSC
PCC
chord
harmonic coupler
techni-chord
transpose
APC
U&L percussive presets
piano
harpsi-chord
vibra-phone
guitar
banjo
orchestral conductor
upper
lower
upper tab voices
orches-tral presets
solo synthe presets
percus-sive presets
string ensemble
lower tab voices
Voice Setting Computer
I
II
III
IV
V
cancel
pre-fixed
multi-tremolo/vibrato
vibrato
multi-tremolo
U tab voices
L tab voices
chorus
tremolo
U&L orchestral presets
trom-bone
saxo-phone
accor-dion
clari-net
wah brass
lower
harmonic coupler
2'
celeste
U&L or-chestral presets
U&L solo synthe presets
L tab voices
flute 8'
flute 4'
string 8'
U & L solo synthesizer presets
pan flute
synthe chopper
bass
electric bass
tuba
bass 8'
bass 16'
acoustic bass
synthe bass
shuffle
funk rock
swing rock
guaracha
cha-cha
march
8 beat
ballad
rumba
mambo
waltz
jazz waltz
swing I
16 beat
disco I
bossa-nova I
samba
tango
swing II
samba rock
disco II
bossa-nova II
baion
arrange percussion
drum percussion
on
mellow
rhythmic orchestra
rhythmic
melodic
slow
tempo
fast
tempo set
fill in & intro
solo
combination VSC
chord composer
D.S.
Program Chord Computer
cancel
PCC
fin-gered
memory
auto play chord
techni-chord
close open
transpose
glide rhythm
synchro
drum percussion
beat
start/stop
record
foot SW
tuning
free set
upper
U&L percussive presets
sustain
lower
main volume
reverb
bass
Fullband Setting Computer

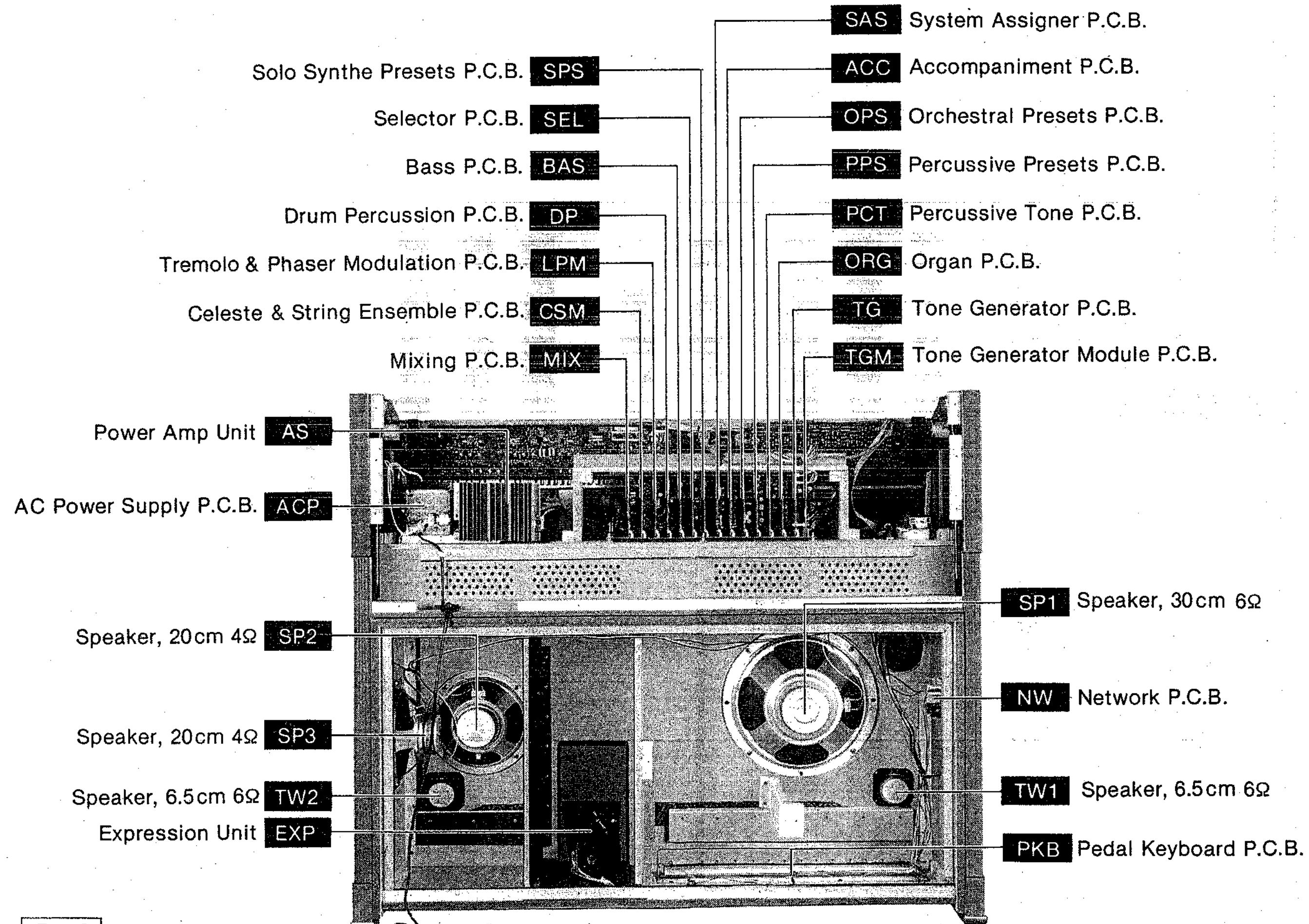
PRINTED CIRCUIT BOARDS LOCATION


MD Musical Display
CPL Upper Control Panel SW. Left P.C.B.
CPR Upper Control Panel SW. Right P.C.B.
Technics

[Photo-1]


LKB Lower Keyboard P.C.B.
CPSL Control Panel SW. Left P.C.B.
Reverb Unit
CPSR Control Panel SW. Right P.C.B.
UKB Upper Keyboard P.C.B.
PS Power Supply P.C.B.
JACK Jack P.C.B.

[Photo-2]

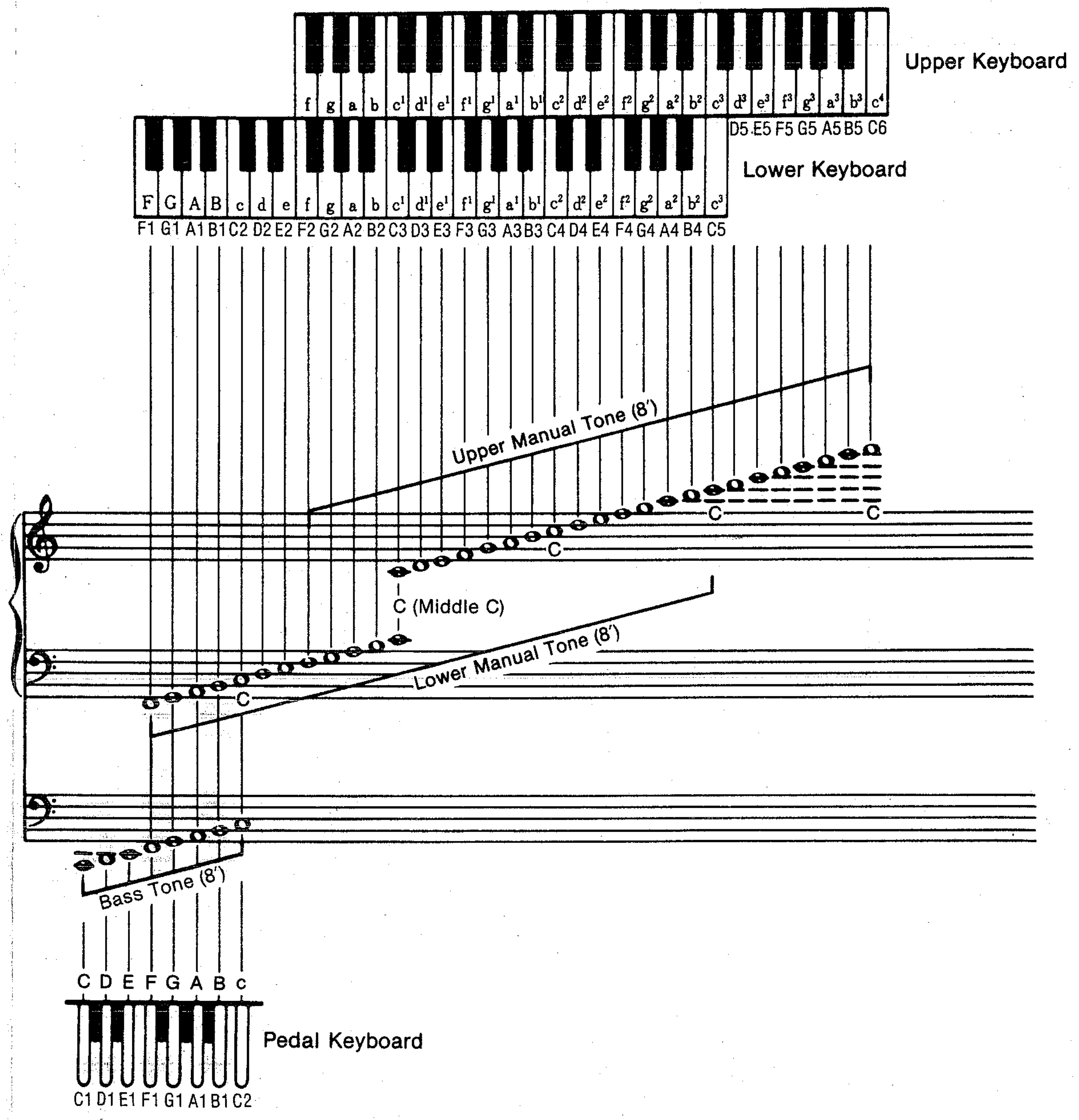

SAS System Assigner P.C.B.
ACC Accompaniment P.C.B.
OPS Orchestral Presets P.C.B.
PPS Percussive Presets P.C.B.
PCT Percussive Tone P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Solo Synthe Presets P.C.B. SPS
Selector P.C.B. SEL
Bass P.C.B. BAS
Drum Percussion P.C.B. DP
Tremolo & Phaser Modulation P.C.B. LPM
Celeste & String Ensemble P.C.B. CSM
Mixing P.C.B. MIX
Power Amp Unit AS
AC Power Supply P.C.B. ACP
Speaker, 20cm 4Ω SP2
Speaker, 20cm 4Ω SP3
Speaker, 6.5cm 6Ω TW2
Expression Unit EXP
SP1 Speaker, 30cm 6Ω
NW Network P.C.B.
TW1 Speaker, 6.5cm 6Ω
PKB Pedal Keyboard P.C.B.

[Photo-3]

KEYBOARD RANGES

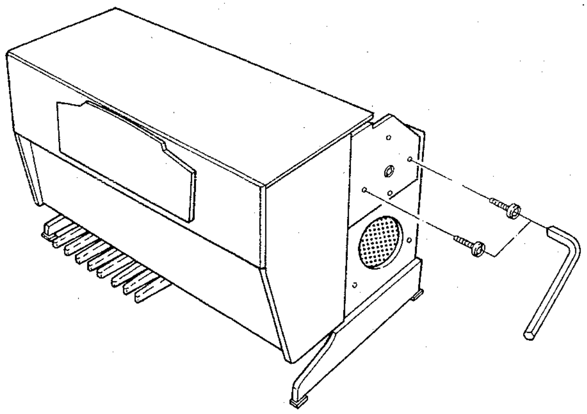
Upper Keyboard ....44 Keys f to c^4 ($3^2/_3$ Octaves)
Lower Keyboard ....44 Keys F to c^3 ($3^2/_3$ Octaves)
Pedal Keyboard ....13 Keys C to c (1 Octave)

※ An 8-feet compass is used for each keyboard.


Upper Keyboard
f g a b c^1 d^1 e^1 f^1 g^1 a^1 b^1 c^2 d^2 e^2 f^2 g^2 a^2 b^2 c^3 d^3 e^3 f^3 g^3 a^3 b^3 c^4
D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
F G A B c d e f g a b c^1 d^1 e^1 f^1 g^1 a^1 b^1 c^2 d^2 e^2 f^2 g^2 a^2 b^2 c^3
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
C
C
C
C (Middle C)
Lower Manual Tone (8')
C
Bass Tone (8')
C D E F G A B c
Pedal Keyboard
C1 D1 E1 F1 G1 A1 B1 C2

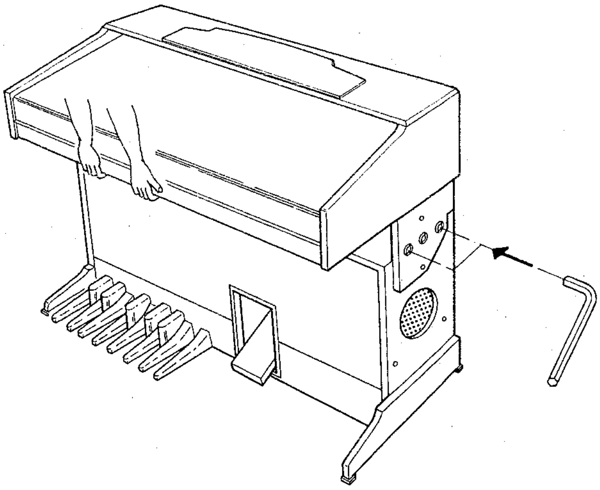
HOW TO ASSEMBLE THE ORGAN

1. Remove the red screws using the supplied wrench.



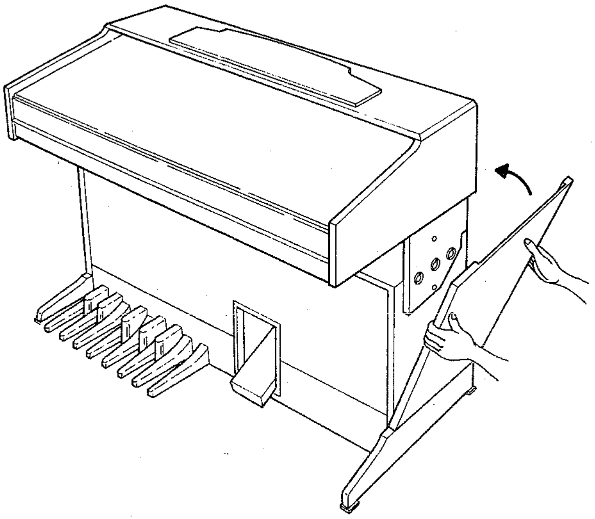
[Fig.-1]

2. Holding the upper cabinet section, lift it into position and tighten the red screws firmly.



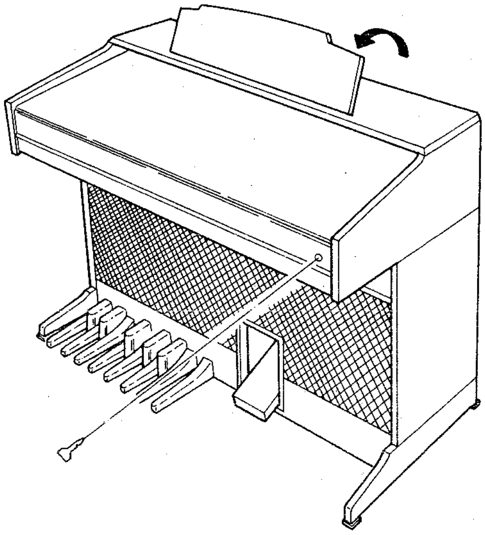
[Fig.-2]

3. Hold each side panels with both hands and install the side panel on the side board of cabinet.



[Fig.-3]

4. Unlock the sliding cover with the accessory key.



[Fig.-4]

■CAUTION

Voltage

Be sure the voltage adjuster at the right, below your organ, is in accordance with local voltage in your area before using this unit. Use a screwdriver to set the voltage adjuster to the local voltage. (There is no voltage adjuster for some countries; the correct voltage is already set.)

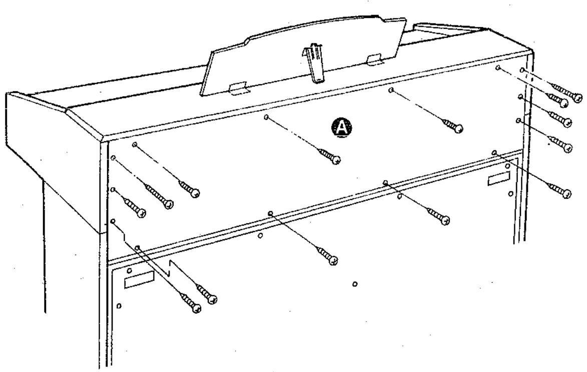
Folding Down

Before folding the upper cabinet section, be sure to lock the key.

DISASSEMBLY INSTRUCTIONS

1. Top Cover

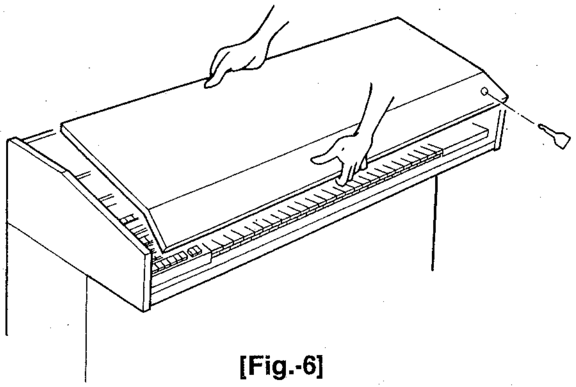
a) Remove the 14 setscrews Ⓐ located on the rear panel. Then the rear panel can be removed.
b) Remove the top cover, slide it back and lift.



[Fig.-5]

2. Sliding Cover

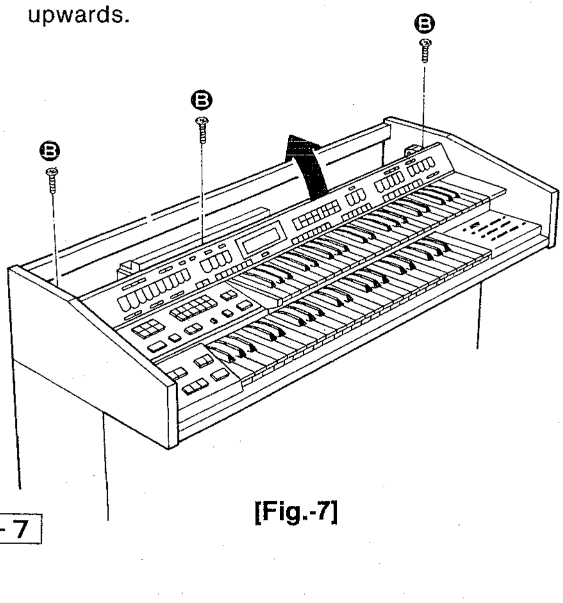
a) Unlock the sliding cover with the accessory key.
b) After removing the top cover, remove the sliding cover in its fully-closed position.



[Fig.-6]

3. Upper Control Panel

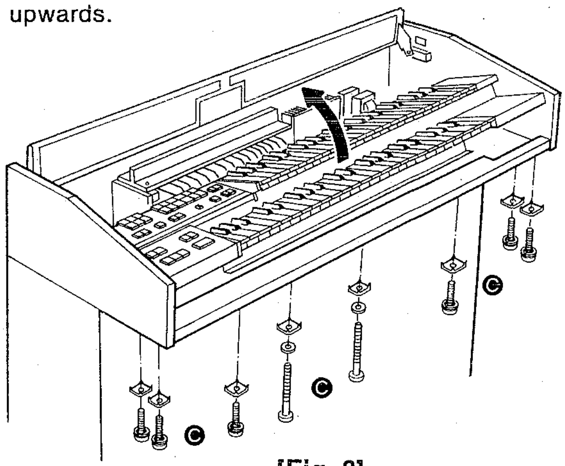
a) Remove both top cover and sliding cover according to steps 1 and 2.
b) Remove the 3 red screws Ⓑ which fasten the upper control panel.
c) Then the upper control panel can be opend upwards.



[Fig.-7]

4. Keyboard & End Cover Unit

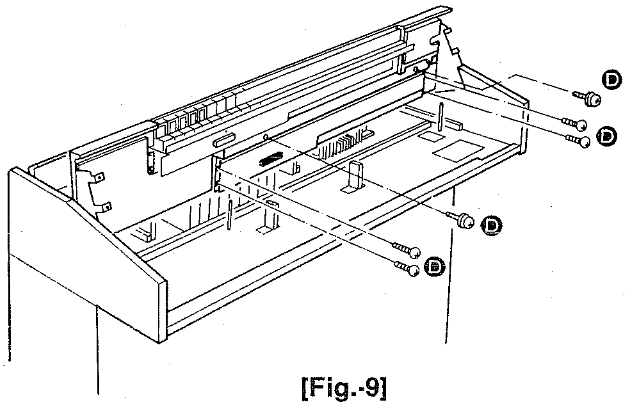
a) Open the control panel according to steps 1, 2 and 3.
b) Remove the 8 setscrews Ⓒ on the bottom of the shelf-board.
c) Then the keyboard & end cover unit can be opened upwards.



[Fig.-8]

5. Upper Keyboard

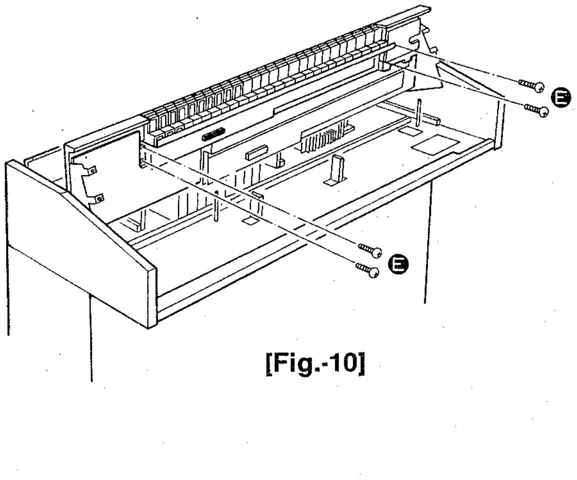
a) Open the keyboard and end cover unit according to step 4.
b) Remove the 6 setscrews Ⓓ which fasten the upper keyboard chassis.
c) Then the upper keyboard can be removed.



[Fig.-9]

6. Lower Keyboard

a) Open the keyboard and end cover unit according to step 4.
b) Remove the 4 setscrews Ⓔ which fasten the lower keyboard chassis.
c) Then the lower keyboard can be removed.

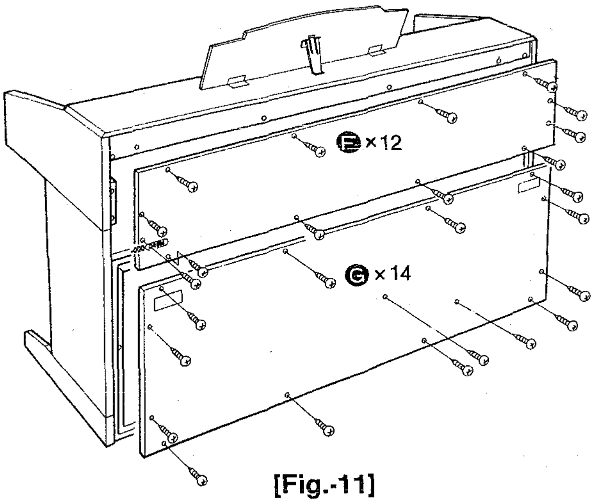


[Fig.-10]

7. Rear Panel

a) Upper cabinet section
Remove the 12 setscrews Ⓕ on the rear panel.

b) Lower cabinet section
Remove the 14 setscrews Ⓖ on the rear panel.



[Fig.-11]

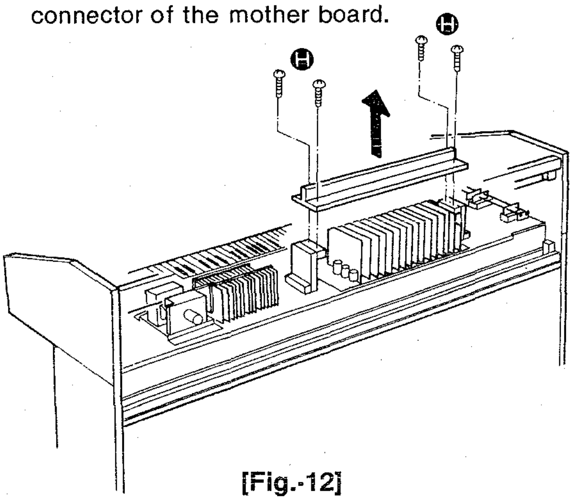
8. Printed Circuit Board (Mother Board Block)

a) Open the control panel according to steps 1, 2 and 3.

b) Remove the rear panel of the upper cabinet.

c) Remove the 4 setscrews Ⓗ on the printed circuit board retainer plate.

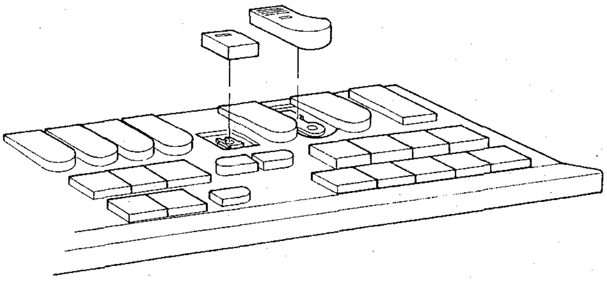
d) Each printed circuit board can be removed from the connector of the mother board.



[Fig.-12]

9. Buttons and Knobs

a) All buttons and knobs can be pulled out.



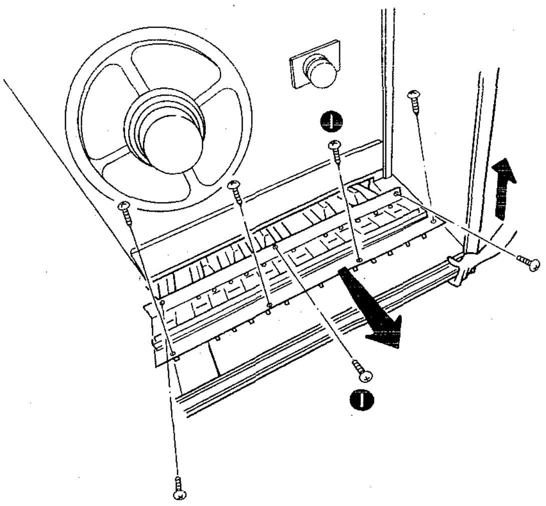
[Fig.-13]

10. Pedal Keyboard

a) Remove the rear panel of the lower cabinet.

b) Remove the 7 setscrews Ⓘ which fasten the pedal keyboard chassis.

c) Lift the cabinet body, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig.-14]

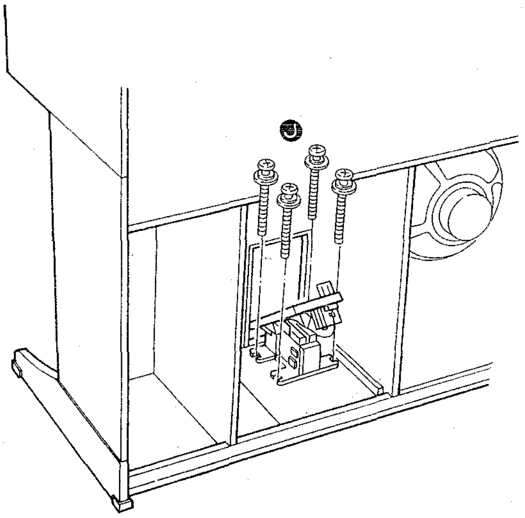
11. Expression Unit

a) Remove the rear panel of the lower cabinet.

b) Remove the 4 setscrews Ⓙ which fasten the expression unit.

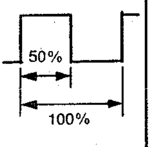
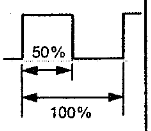
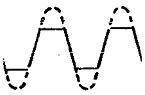
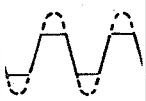
c) The expression unit can be removed.

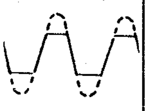
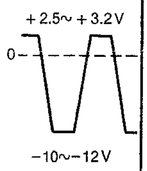
d) When replacing the expression lamp, remove the lamp retainer rubber and detach the lamp from the socket.



[Fig.-15]

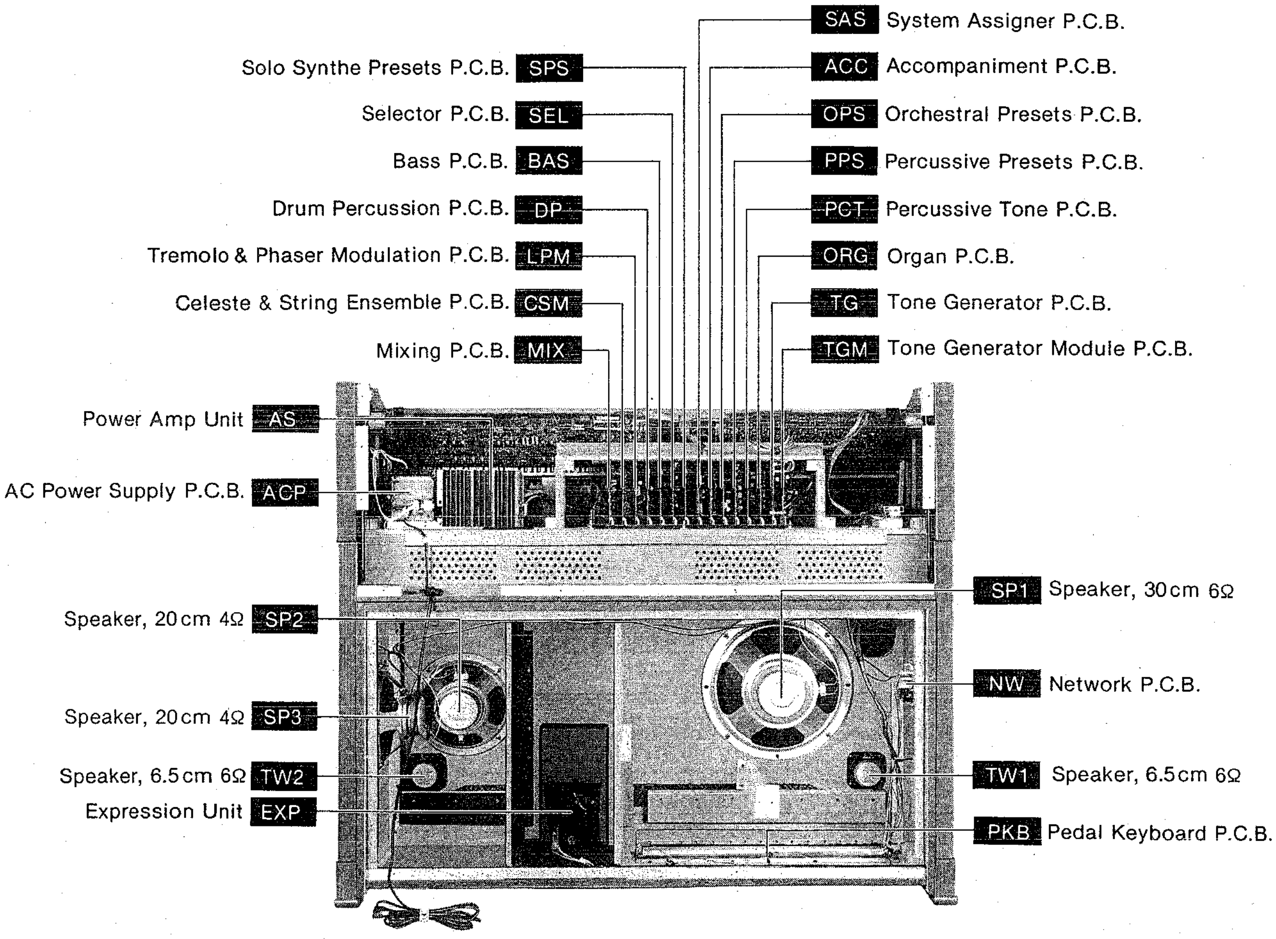
MEASUREMENTS AND ADJUSTMENTS

ADJUSTMENT	SETTING	METER USED	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Tuning (tab)	tuning (free set) ....off u. orch. conductor ......tab voices upper voices ....flute 8′ upper keyboard ....A3 key	Oscilloscope, (Frequency counter)	Tone Generator Circuit	VR1	MCTC terminal (20cm [SP2] speaker)	 (440Hz)
	1. Connect an oscilloscope to MCTC terminal of tone generator P.C.B. and adjust VR1 so that the duty ratio of output waveform is 50%. 2. Connect a frequency counter to 20cm [SP2] speaker and make the setting as mentioned here, then confirm the frequency is 440Hz.					
Tuning (mono-tone)	tuning (free set) ....off pedal voices ....bass 8′ pedal keyboard ....A1 key	Oscilloscope, (Frequency counter)	Tone Generator Circuit	VR2	MCMC terminal (20cm [SP2] speaker)	 (110Hz)
	1. Connect an oscilloscope to MCMC terminal of tone generator P.C.B. and adjust VR2 so that the duty ratio of output waveform is 50%. 2. Connect a frequency counter to 20cm [SP2] speaker and make the setting as mentioned here, then confirm the frequency is 110Hz.					
Reverb depth	u. orch. conductor ......tab voices upper voices ....flute 16′, 8′, 4′ upper volume ....loud reverb ....max upper keyboard ....C3~B3 (only for natural key)	Electric voltmeter	Mixing Circuit	VR4	IC15 ⑧ Pin	150mVrms
Output level (manual)	u. orch. conductor ......tab voices upper voices ....flute 16′, 8′, 4′ upper volume ....loud main volume ....loud expression pedal ......max celeste.....................u. tab voices upper keyboard ....C5, E5, G5 line out switch............3ch	Electric voltmeter	Mixing Circuit	VR1	line out ch1	0.21Vrms
				VR2	line out ch2	0.21Vrms
				VR3	line out ch3	0.28Vrms
Expression characteristics	u. orch. conductor ......tab voices upper voices ....flute 16′, 8′, 4′ upper volume ....loud main volume ....loud expression pedal ......max~min upper keyboard C3, E3, G3	Electric voltmeter	System Assigner Circuit	VR1	20cm [SP2] speaker	35dB
		Adjust VR1 of system assinger P.C.B. so that the change in output is 35dB when the expression pedal is shifted from the maximum to minimum.				
BBD bias (Celeste)	u. orch. conductor ......tab voices	Oscilloscope Oscillator	Celeste & String Ensemble Circuit (CSM)	VR1	Check Point ⑮	
	1. Connect the oscilloscope to check point ⑮ of CSM circuit. 2. Remove C16 50V 1 of CSM circuit, and apply 1kHz sine wave to check point ④. Then, adjust the output level of oscillator until the output wave of check point ⑮ is clipped. 3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.					
BBD bias (String ensemble)	u. orch. conductor ......tab voices	Oscilloscope Oscillator	Celeste & String Ensemble Circuit (CSM)	VR2	Check Point ㉔	
	1. Connect the oscilloscope to check point ㉔ of CSM circuit. 2. Remove R38 22K of CSM circuit, and apply 1kHz sine wave to JP5. Then, adjust the output level of oscillator until the output wave of check point ㉔ is clipped. 3. Adjust VR2 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.					

<table>
<tr><th>ADJUSTMENT</th><th>SETTING</th><th>METER USED</th><th>ADJUSTMENT CIRCUIT BOARD</th><th>ADJ. POINT</th><th>CONNECT METER TO</th><th>METER READING</th></tr>
<tr><td rowspan="2">BBD bias
(Lessly)</td><td>u. orch. conductor ......tab voices</td><td>Oscilloscope
Oscillator</td><td>Tremolo & Phaser Modulation Circuit (LPM)</td><td>VR1</td><td>Check Point ⓳</td><td rowspan="2"></td></tr>
<tr><td colspan="5">1. Connect the oscilloscope to check point ⓳ to LPM circuit.
2. Remove the lead terminal on input side of C43 0.022 of LPM circuit, and apply 1kHz sine wave to the terminal. Then, adjust the output level of oscillator until the output wave of check point ⓳ is clipped.
3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.</td></tr>
<tr><td>Banjo envelope
....
Vibraphone envelope</td><td>u. orch. conductor ......percussive presets
percussive presets......banjo or vibraphone</td><td colspan="5">• Banjo
Adjust VR2 of percussive presets circuit so that audible modulation noise is minimized when the key is depressed with banjo selected.
• Vibraphone
Adjust VR1 of percussive presets circuit so that audible modulation noise is minimized when the key is depressed with vibraphone selected.</td></tr>
<tr><td rowspan="2">Orchestral presets envelope</td><td>u. orch. conductor ......orchestral presets
orchestral presets ......synthe brass
upper keyboard ....C3 key</td><td>Oscilloscope</td><td>Orchestral Presets Circuit (OPS)</td><td>VR1</td><td>Check Point ❾
(IC2 ⑦ pin)</td><td>

+2.5~+3.2V
0
−10~−12V

</td></tr>
<tr><td colspan="6">1. Connect the oscilloscope to check point ❾ to OPS circuit.
2. Press C3 key of upper keyboard and adjust VR1 so that the waveform on the oscilloscope are evenly clipped at peak and bottom.</td></tr>
</table>


SAS System Assigner P.C.B.
ACC Accompaniment P.C.B.
OPS Orchestral Presets P.C.B.
PPS Percussive Presets P.C.B.
PCT Percussive Tone P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Solo Synthe Presets P.C.B. SPS
Selector P.C.B. SEL
Bass P.C.B. BAS
Drum Percussion P.C.B. DP
Tremolo & Phaser Modulation P.C.B. LPM
Celeste & String Ensemble P.C.B. CSM
Mixing P.C.B. MIX
Power Amp Unit AS
AC Power Supply P.C.B. ACP
Speaker, 20cm 4Ω SP2
Speaker, 20cm 4Ω SP3
Speaker, 6.5cm 6Ω TW2
Expression Unit EXP
SP1 Speaker, 30cm 6Ω
NW Network P.C.B.
TW1 Speaker, 6.5cm 6Ω
PKB Pedal Keyboard P.C.B.

PRECAUTIONS FOR REPAIR

■ Troubles often occur due to faulty operation of your electronic organ if you are not completely familiar with its mechanisms. Therefore, if your organ shows the following symptoms, please check the instrument before repair.

Symptom	Cause and measure
Lower keyboard on pedal keyboard keep sounding.	When fingered and memory button are ON, or PCC button is ON, while rhythm is OFF, if lower keyboard is played, then lower keyboard and pedal keyboard will keep sounding. • Please push the cancel button of the program chord computer.
Nine or more keys of upper or lower keyboard are simultaneously depressed, only 8 keys make sound.	It is designed so that upper and lower keyboards can make sound only up to 8 keys when harmonic coupler is not provided. • Priority is given to 8 keys of higher-pitched sound.
Upper or lower keyboard makes sound only up to 4 tones.	With harmonic coupler provided, each keyboard can simultaneously sound only up to 4 tones. • Priority is given to 4 keys of higher-pitched sound.
Harmonic effect is not given.	Harmonic coupler is effective only when tab voice is individually used. For example, if tab voice is used in combination with string ensemble, then harmonic effect will not be given.
When flute 2′ or 1′ of tab voices is selected, the tone is lowered by 1 octave in the range of top octave.	The tone becomes 1 octave lower: top octave (c^4 key) in flute 2′ and ($c^3 \sim c^4$ keys) in flute 1′ respectively.
Lower-pitched (19 keys) sounds of upper keyboard are different in tone from the higherpitched (25 keys) sounds.	During memory operation of voice setting computer, transpose, full-band setting computer and harmonic coupler, the tones and effects of lower keyboard can be checked by the 19 lower-pitched sound keys of upper keyboard.
Click sound is not made.	Click sound is made only with flute tablet selected. • It is not make by individual use of click tablet.
When PCC button of program chord computer is used for chord memory operation, pressing the chord composer key makes the error sound — sharp whistle.	Data of one tune up to 74 chords can be stored in the program chord computer. The alarm is given by normal whistle at the 74th chord, and the error sound is given by sharp whistle at the 76th chord and over.
With synchro button depressed, rhythm does not start when accompaniment is played.	If rhythm is stopped by foot switch, synchro button will also turn OFF. • If rhythm is stopped by foot switch, synchro button must be turned ON. • During the play mode of auto play chord, synchro start is not possible with pedal keyboard.
Rhythm and fill-in patterns spontaneously change.	To make the play variegated, the bass pattern is designed to change spontaneously during drum percussion, rhythmic orchestra or auto play mode. It is also designed so that the fill-in does not continue the same pattern.
Memory operations of transpose, harmonic coupler, program chord computer, full-band setting computer, and voice setting computer are not possible.	Record button turns off making memory operation impossible unless a proper button is not depressed within 5sec. after depressing record button. • Select a proper button while indicator is blinking with record button depressed.
Data stored into voice setting computer, transpose, harmonic coupler, program chord computer, and full-band setting computer go out.	If the organ is left for more than one week with the power switch tuned off or the power cord disconnected after storing the data, the stored data will go out. • To keep data stored in the memory for a long period of time, switch on the organ once a week at least for more than 10min.
Tuning is deflected from the standard pitch.	If the pitch adjust button (–, +) is lighted with free set button ON, then turning is deflected from the standard pitch (440Hz). Tuning pitch changes about 0.3Hz each time the button is pushed. It changes in a range of 438Hz—446Hz. Also LED blinks at the upper and lower limits of the range. • To play with it returned to the standard pitch, turn off the free set button.

REGISTRATION FOR 20 COMBINATION VSC

20 combination VSC

Combinations of original tones and effects are preset in this unit. You can select the desired tones by the lower keyboard keys marked with 1—20, and store them by use of buttons I, II, III, IV and V of the voice setting computer. The tones mentioned below are preset in the keyboard (1—20). The combinations of the selected tones and effects are displayed by LED's on the control panel. The *-marked tones and effects are not displayed on the control panel.

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect
1	Theater Organ	upper: tab voices	flute 16′, 8′, 4′, 2′, 1′		bass 16′, 8′	tremolo: U. tab L. tab sustain: upper
		lower: tab voices		flute 8′, 4′		
2	Church Organ	upper: tab voices	flute 16′, 8′, 4′, 2$^{2}/_{3}$′, 2′, *1$^{1}/_{3}$′ 1′ slow attack		bass 16′, 8′	chorus: U. tab L. tab celeste: U. tab
		lower: tab voices		flute 8′, 4′, *2′ *slow attack		
3	Pop Organ I	upper: tab voices	flute 16′, 2$^{2}/_{3}$′ percussive tone 2$^{2}/_{3}$′		bass 8′	chorus: U. tab celeste: L. tab
		lower: tab voices		flute 8′, 4′		
4	Pop Organ II	upper: tab voices	flute 16′, 4′ *decay percussive tone 4′		bass 16′, 8′	chorus: U. tab L. tab sustain: upper flute 4′
		lower: tab voices		flute 8′, 4′		
5	Rock Organ	upper: tab voices	flute 16′, 8′, 5$^{1}/_{3}$′, 4′, 2$^{2}/_{3}$′, 2′, *1$^{1}/_{3}$′, 1′ percussive tone 2$^{2}/_{3}$′, *5$^{2}/_{3}$′ harmonic coupler 2$^{2}/_{3}$′		bass 8′	chorus: U. tab L. tab celeste: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
6	Jazz Organ	upper: tab voices	flute 16′, 8′, 5$^{1}/_{3}$′ percussive tone 2$^{2}/_{3}$′, *5$^{2}/_{3}$′, click...full		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
7	Classical Strings	upper: tab voices	flute 8′, string 8′ ...slow attack		bass 8′	chorus: U. tab L. tab celeste: U. tab L. tab sustain: bass (long)
		lower: tab voices		flute 8′, string 8′ *slow attack		
8	Classical Ensemble	upper: tab voices percussive presets	flute 8′, 4′, string 8′ ...slow attack harpsichord		bass 8′	chorus: U. tab L. tab celeste: U. tab L. tab
		lower: tab voices string ensemble		flute 8′ *slow attack string ensemble		
9	Pop Ensemble <I>	upper: tab voices percussive presets	flute 16′, 1′...slow attack piano...full		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
10	Pop Ensemble <II>	upper: solo presets string ensemble	pan flute...volume: loud string ensemble		bass 8′	chorus: L. tab
		lower: tab voices percussive presets string ensemble		flute 8′ harpsichord string ensemble		

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect
11	Soft Brass	upper: orchestral presets solo presets	trombone...full trombone		acoustic bass	celeste: L. tab voices U. orchestral pre.
		lower: tab voices percussive presets		flute 8′ guitar		
12	Big Band Brass	upper: orchestral presets solo presets	saxophone...full saxophone		acoustic bass	chorus: L. tab celeste: U. orchestral pre. U. solo presets
		lower: tab voices percussive presets		flute 8′ piano		
13	Marching Brass	upper: orchestral presets solo presets	trombone...full pan flute		tuba	chorus: L. tab celeste: U. orchestral pre. sustain: bass (short)
		lower: tab voices percussive presets		flute 8′ banjo		
14	Synthe Brass	upper: tab voices orchestral presets solo presets	flute 16′, 8′ wah brass...full saxophone...volume: soft		electric bass	chorus: U. tab L. tab celeste: U. solo presets
		lower: tab voices percussive presets		flute 8′ guitar		
15	Fusion Guitar	upper: percussive presets solo presets	guitar...full synthe chopper ...volume: soft		electric bass	chorus: L. tab
		lower: tab voices		flute 8′, 4′		
16	New Wave	upper: tab voices orchestral presets solo presets	flute 16′ percussive tone 4′, click saxophone...full synthe chopper		electric bass	chorus: U. tab L. tab celeste: U. orchestral pre.
		lower: tab voices percussive presets		flute 8′, 4′ guitar		
17	Funk Rock	upper: orchestral presets solo presets	wah brass...full synthe chopper ...volume: soft		synthe bass	chorus: L. tab celeste: U. orchestral pre.
		lower: tab voices percussive presets		flute 8′, 4′ piano		
18	Jazz Guitar Combo	upper: tab voices percussive presets	flute 16′, 8′, $5\frac{1}{3}$′ upper volume...soft percussive tone $2\frac{2}{3}$′ click...full guitar...full		acoustic bass	chorus: U. tab L. tab celeste: L. orchestral pre.
		lower: tab voices orchestral presets		flute 8′, 4′ trombone		
19	Mix Combo	upper: tab voices orchestral pre. solo presets	flute 16′, 4′ percussive tone 4′... long, full trombone...full pan flute		bass 16′, 8′	chorus: U. tab L. tab celeste: U. orchestral pre.
		lower: tab voices percussive presets		flute 8′, 4′ piano		
20	Ballade Sound	upper: tab voices percussive presets solo presets	flute 4′ harpsichord pan flute		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′		

MEMO

INTRODUCTORY REMARKS REGARDING SCHEMATIC DIAGRAMS

1. Important safety notice:

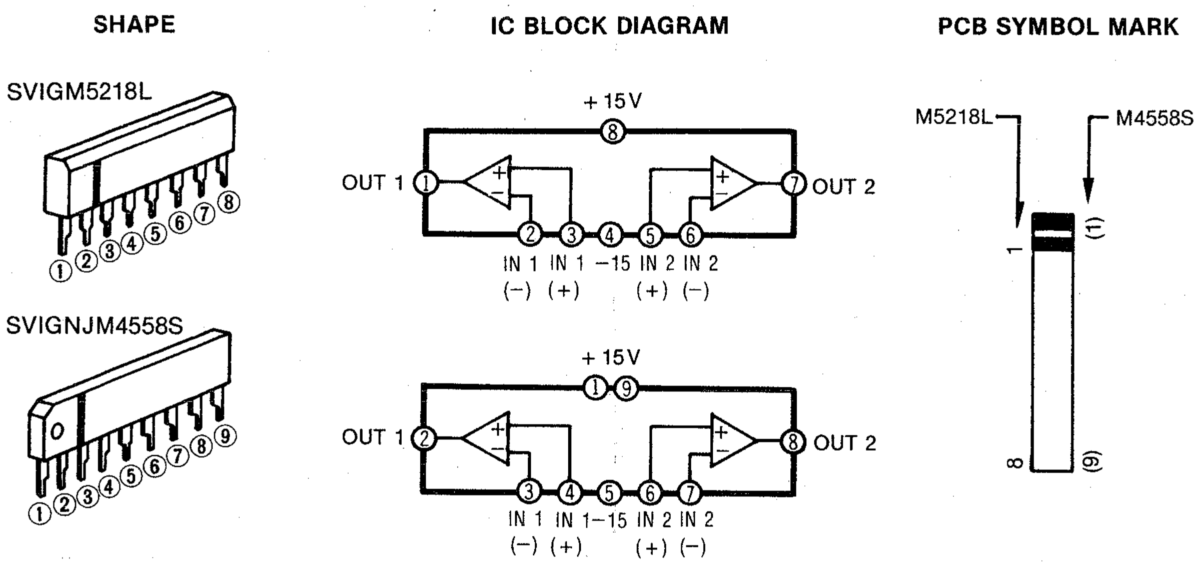
Components identified by ⚠ mark have special characteristics for safety.
When replacing any of these components, use only manufacturer's specified parts.

2. Signal lines

➡ Sound source signal or Tone signal
⇨ Control signal
▨⇨ Clock signal

3. Terminal No. of operational amplifier

In this model, operational amplifiers with different number of terminals as shown below are used together.
Those mentioned in the circuit diagram are based upon the terminal No. of SVIGM5218L. Therefore, when checking a P.C.B. using SVIGNJM4558S, note that the terminal No. are different from those in the circuit diagram.


SHAPE
IC BLOCK DIAGRAM
PCB SYMBOL MARK
SVIGM5218L
①②③④⑤⑥⑦⑧
+15V
⑧
OUT 1 ①
⑦ OUT 2
②③④⑤⑥
IN 1 (−) IN 1 (+) −15 IN 2 (+) IN 2 (−)
SVIGNJM4558S
①②③④⑤⑥⑦⑧⑨
+15V
①⑨
OUT 1 ②
⑧ OUT 2
③④⑤⑥⑦
IN 1 (−) IN 1 (+) −15 IN 2 (+) IN 2 (−)
M5218L
M4558S
1
(1)
8
(9)

4. Symbolic marks

The smbolic marks for resistors and capacitors, which are used in the circuits for this organ, are as follows.

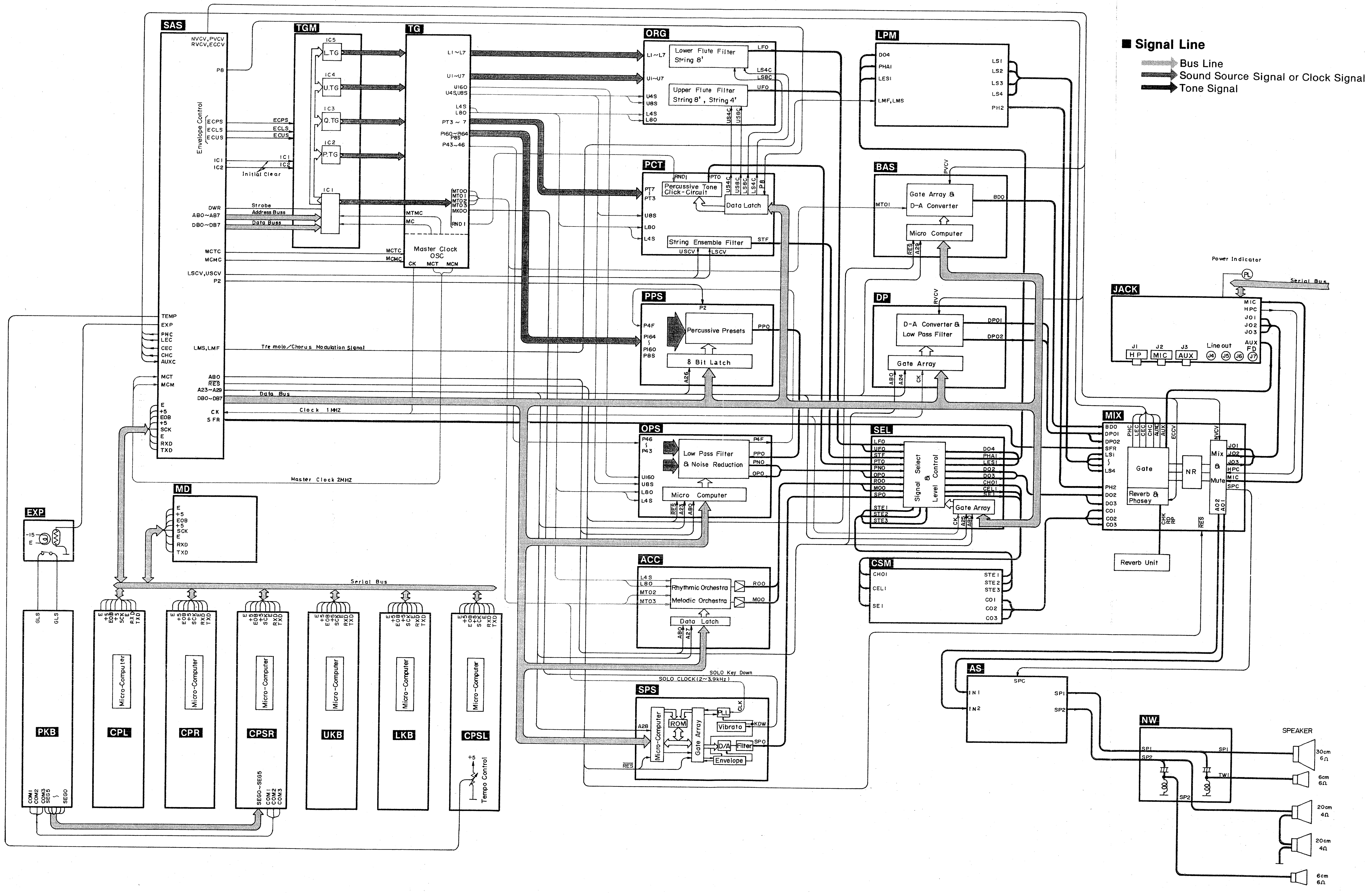
■ Resistors

(1) Resistors without symbolic mark are FIXD CARBON FILM RESISTORS.
(2) All resistors are 1/4 WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagram.
(3) Resistors with 🄵 symbolic mark are Flame-Proof resistors.
(4) All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ.

■ Capacitors

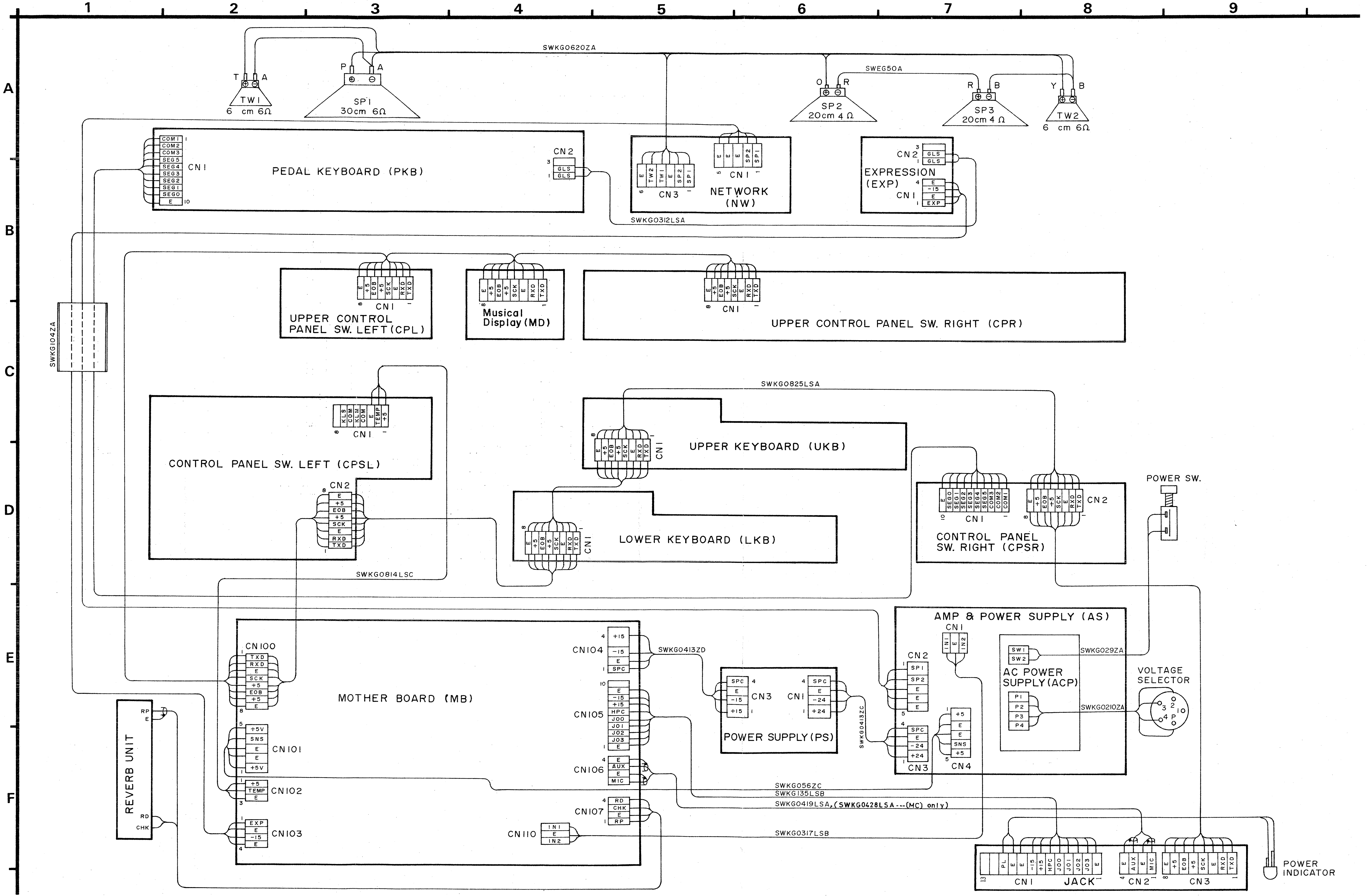
(1) Capacitors without symbolic mark are Polyester Film Capacitors (ECQM—type).
(2) Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type).
(3) Others
  (TF) : TF capacitor (ECQV—type).
  Ⓩ : Aluminum Electrolytic Capacitor, Ⓩ series Low impedance type (ECEA—Z—type).
  (MS) : Aluminum Electrolytic Capacitor, (MS) series Low leakage current type (ECEA—M—type).
  Ⓝ : Bi-Polarized Electrolytic Capacitor (ECEA—N—type), (ECEA—Y—type).
  ○ : Ceramic Capacitor (ECC—type), (ECK—type).
(4) All capacitors are microfarads unless otherwise specified in the schematic diagram.

BLOCK DIAGRAM

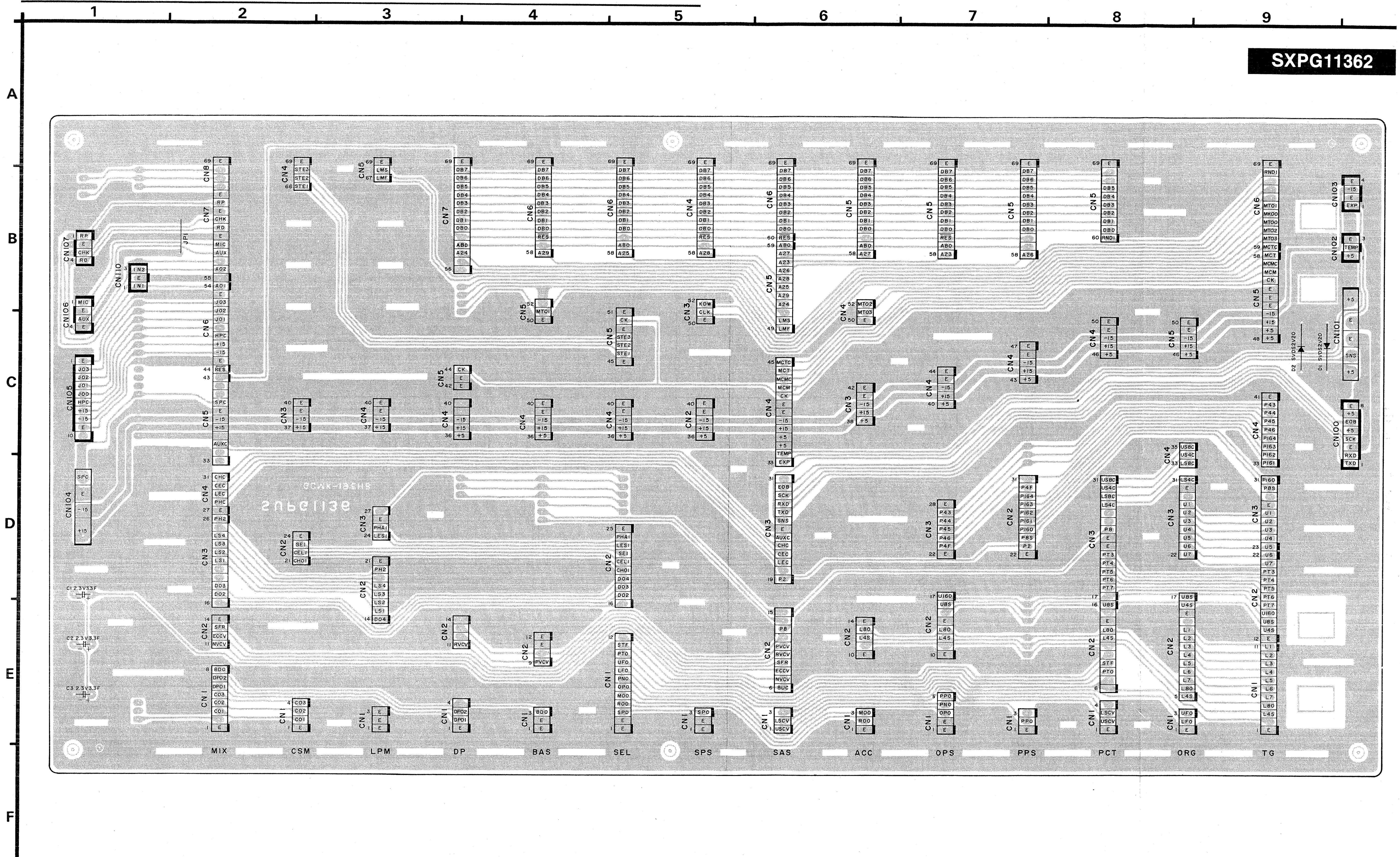


■ Signal Line
Bus Line
Sound Source Signal or Clock Signal
Tone Signal
SAS
NVCV,PVCV
RVCV,ECCV
P8
Envelope Control
ECPS
ECLS
ECUS
IC1
IC2
Initial Clear
DWR
AB0~AB7
DB0~DB7
Strobe
Address Buss
Data Buss
MCTC
MCMC
LSCV,USCV
P2
TEMP
EXP
PHC
LEC
CEC
CHC
AUXC
LMS,LMF
Tremolo/Chorus Modulation Signal
MCT
MCM
AB0
RES
A23~A29
DB0~DB7
Data Bus
CK
SFR
Clock 1MHZ
E
+5
EOB
+5
SCK
E
RXD
TXD
Master Clock 2MHZ
TGM
IC5
L.TG
IC4
U.TG
IC3
Q.TG
IC2
P.TG
IC1
TG
L1~L7
U1~U7
U160
U4S,U8S
L4S
L80
PT3 ~ 7
PI60~PI64
P8S
P43~46
MTO0
MTO1
MTO2
MTO3
MKO0
RND1
MTMC
MC
Master Clock OSC
CK
MCT
MCM
ORG
L1~L7
U1~U7
U4S
U8S
L4S
L80
Lower Flute Filter
String 8'
LFO
LS4C
LS8C
Upper Flute Filter
String 8', String 4'
UFO
US4C
US8C
PCT
PT7
PT3
RND1
PTO
Percussive Tone Click-Circuit
Data Latch
U8S
L80
L4S
String Ensemble Filter
STF
USCV
LSCV
P8
PPS
P2
P4F
PI64
PI60
P8S
Percussive Presets
PPO
8 Bit Latch
A26
OPS
P46
P43
P4F
Low Pass Filter
& Noise Reduction
PPO
PNO
OPO
U160
U8S
L80
L4S
Micro Computer
RES
A28
AB0
ACC
L4S
L80
MTO2
MTO3
Rhythmic Orchestra
Melodic Orchestra
ROO
MOO
Data Latch
AB0
A27
SPS
SOLO Key Down
SOLO CLOCK (2~3.9kHz)
A28
Micro-Computer
ROM
Gate Array
PLL
CLK
Vibrato
KDW
D/A
Filter
SPO
Envelope
RES
LPM
DO4
PHAI
LESI
LMF,LMS
LS1
LS2
LS3
LS4
PH2
BAS
PVCV
Gate Array &
D-A Converter
BDO
MTO1
Micro Computer
RES
A29
DP
RVCV
D-A Converter &
Low Pass Filter
DPO1
DPO2
Gate Array
AB0
A24
CK
SEL
LFO
UFO
STF
PTO
PNO
OPO
ROO
MOO
SPO
STE1
STE2
STE3
Signal Select & Level Control
DO4
PHAI
LESI
DO2
DO3
CHOI
CELI
SEI
Gate Array
CK
A25
AB0
CSM
CHOI
CELI
SEI
STE1
STE2
STE3
CO1
CO2
CO3
Power Indicator
PL
Serial Bus
JACK
MIC
HPC
JO1
JO2
JO3
AUX
FD
J1
J2
J3
Line out
HP
MIC
AUX
J4
J5
J6
J7
MIX
BDO
DPO1
DPO2
SFR
LS1
LS4
PH2
DO2
DO3
CO1
CO2
CO3
PHC
LEC
CEC
CHC
AUXC
ECCV
NVCV
Gate
Reverb & Phasey
CHK
RDP
RP
NR
Mix & Mute
RES
AO2
AO1
JO1
JO2
JO3
HPC
MIC
SPC
Reverb Unit
AS
SPC
IN1
IN2
SP1
SP2
NW
SP1
SP2
SP1
TW1
SP2
SPEAKER
30cm 6Ω
6cm 6Ω
20cm 4Ω
20cm 4Ω
6cm 6Ω
MD
E
+5
EOB
+5
SCK
E
RXD
TXD
EXP
-15
E
Serial Bus
GLS
GLS
PKB
COM1
COM2
COM3
SEG5
SEG0
CPL
CPR
CPSR
UKB
LKB
CPSL
Micro-Computer
E
+5
EOB
+5
SCK
E
RXD
TXD
SEG0~SEG5
COM1
COM2
COM3
+5
Tempo Control

WIRING CONNECTION DIAGRAM

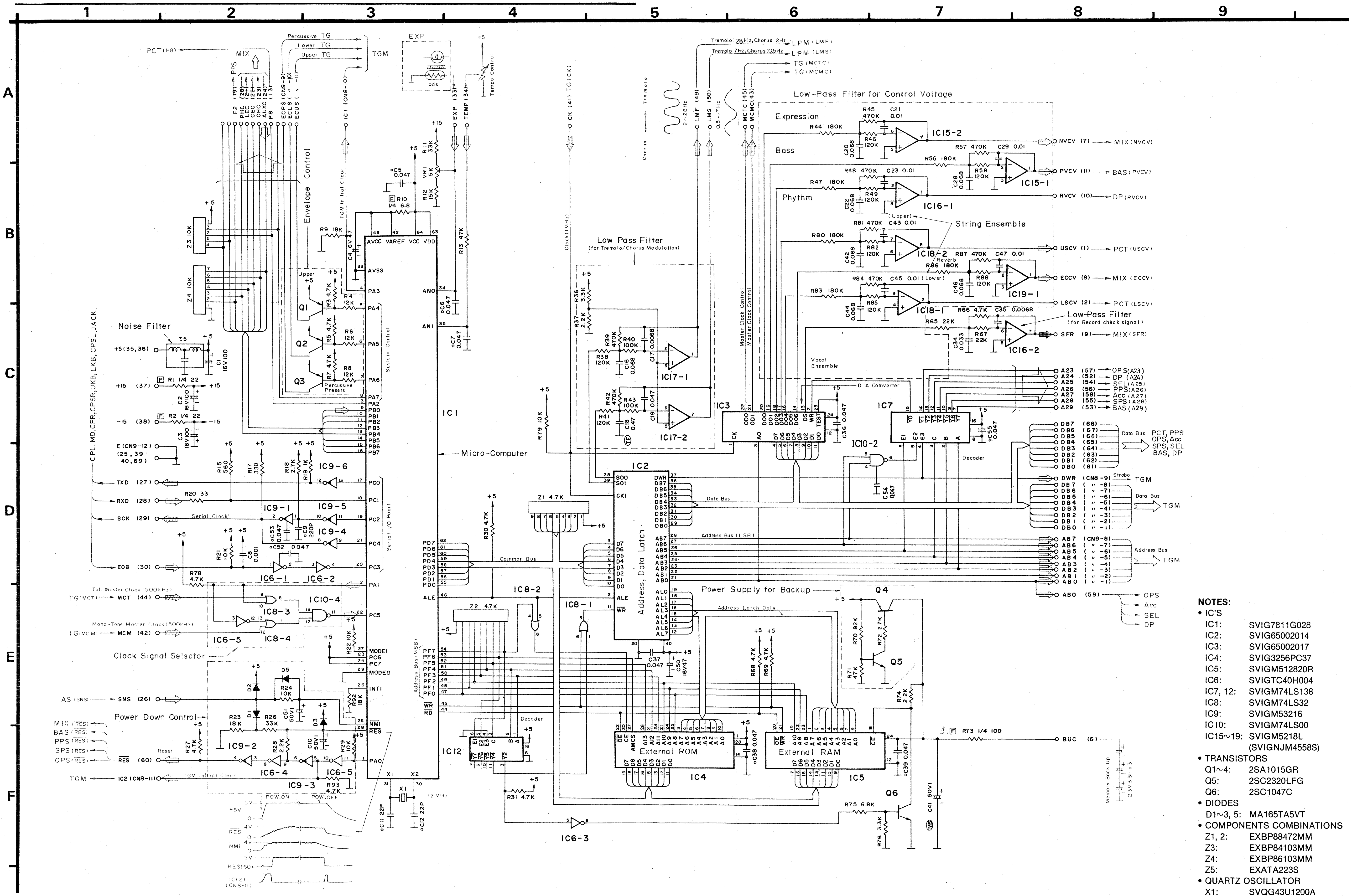

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SWKG0620ZA
TW1
6 cm 6Ω
SP1
30cm 6Ω
SWEG50A
SP2
20cm 4 Ω
SP3
20cm 4 Ω
TW2
6 cm 6Ω
PEDAL KEYBOARD (PKB)
CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
CN2
GLS
NETWORK (NW)
CN3
TW2
TW1
SP2
SP1
SWKG0312LSA
EXPRESSION (EXP)
-15
EXP
UPPER CONTROL PANEL SW. LEFT (CPL)
+5
EOB
SCK
RXD
TXD
Musical Display (MD)
UPPER CONTROL PANEL SW. RIGHT (CPR)
SWKG104ZA
CONTROL PANEL SW. LEFT (CPSL)
KLS
COM
KLM
TEMP
SWKG0814LSC
SWKG0825LSA
UPPER KEYBOARD (UKB)
LOWER KEYBOARD (LKB)
CONTROL PANEL SW. RIGHT (CPSR)
POWER SW.
MOTHER BOARD (MB)
CN100
CN101
+5V
SNS
CN102
CN103
CN104
+15
SPC
SWKG0413ZD
CN105
HPC
J00
J01
J02
J03
CN106
AUX
MIC
CN107
RD
CHK
RP
CN110
IN1
IN2
REVERB UNIT
POWER SUPPLY (PS)
-24
+24
SWKG0413ZC
AMP & POWER SUPPLY (AS)
AC POWER SUPPLY (ACP)
SW1
SW2
P1
P2
P3
P4
SWKG029ZA
SWKG0210ZA
VOLTAGE SELECTOR
CN4
SWKG056ZC
SWKG135LSB
SWKG0419LSA, (SWKG0428LSA---(MC) only)
SWKG0317LSB
JACK
PL
POWER INDICATOR

MOTHER CIRCUIT BOARD (MB)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPG11362
CN107
CN110
CN106
CN105
CN104
CN103
CN102
CN101
CN100
D1 SVDS2V20
D2 SVDS2V20
C1 2.3V3.3F
C2 2.3V3.3F
C3 2.3V3.3F
JP1
MIX
CSM
LPM
DP
BAS
SEL
SPS
SAS
ACC
OPS
PPS
PCT
ORG
TG

NOTES:
- DIODES
  D1, 2: SVDS2V20

SYSTEM ASSIGNER CIRCUIT DIAGRAM (SAS)

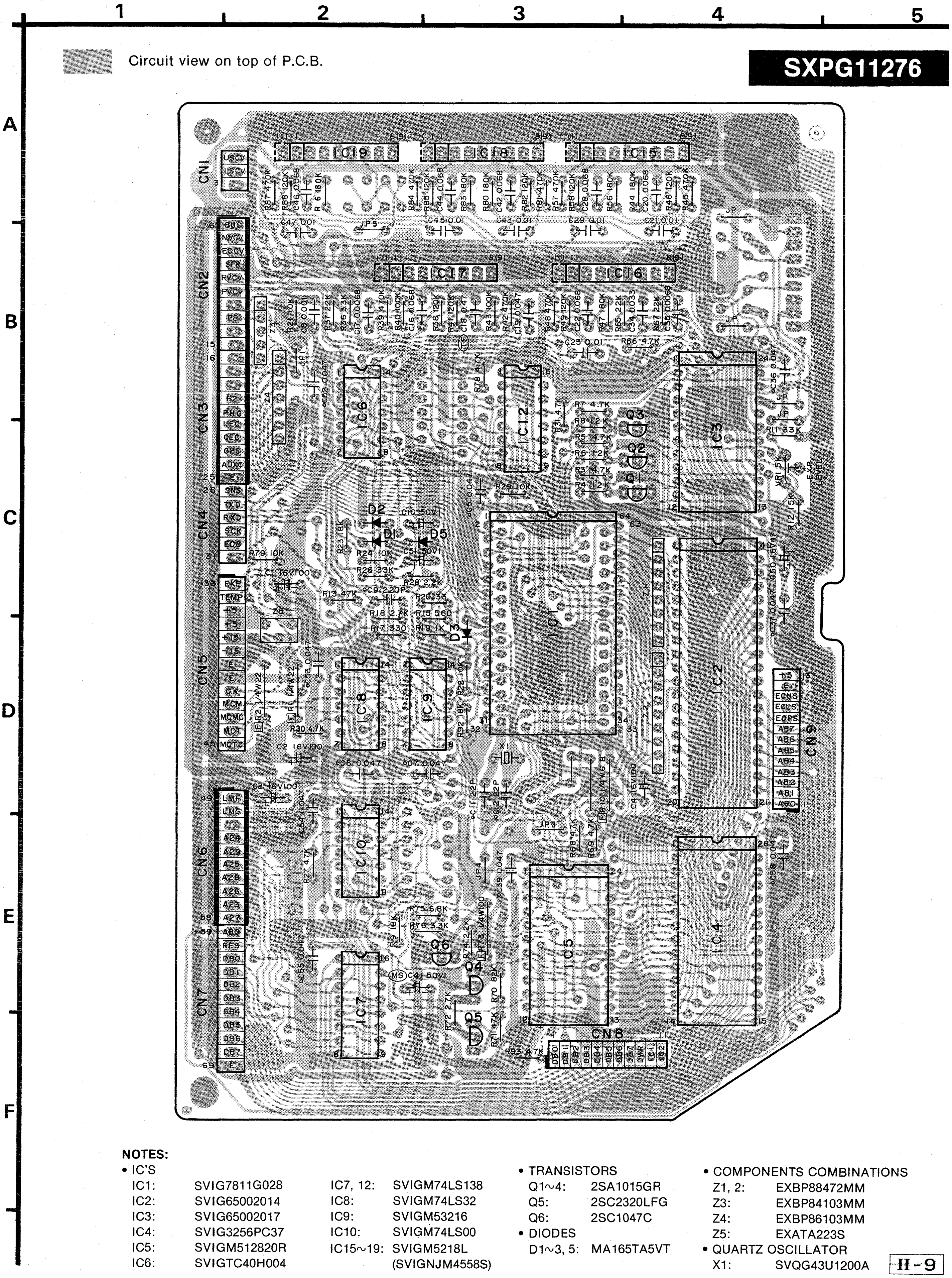

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
PCT (P8)
MIX
Percussive TG
Lower TG
Upper TG
TGM
EXP
cds
+5
Tempo Control
Envelope Control
TGM Initial Clear
Noise Filter
Z5
C1 16V100
R1 1/4 22
R2 1/4 22
+15 (37)
-15 (38)
+5 (35,36)
E (CN9-12) (25, 39 40, 69)
CPL, MD, CPR, CPSR, UKB, LKB, CPSL, JACK
Z3 10K
Z4 10K
Q1
Q2
Q3
Upper
Percussive Presets
Sustain Control
R9 18K
R10 1/4 6.8
VR1 5K
R11 33K
R12 15K
R13 47K
C4 6V47
AVCC VAREF VCC VDD
AVSS
PA3
PA4
PA5
PA6
PA7
PA2
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
AN0
AN1
IC1
Micro-Computer
PC0
PC1
PC2
PC4
PC3
PA1
PC5
MODE1
PC6
PC7
MODE0
INT1
NMI
RES
PA0
X1
X2
12 MHz
C11 22P
C12 22P
TXD (27)
RXD (28)
SCK (29)
Serial Clock
Serial I/O Poart
E08 (30)
IC9-6
IC9-1
IC9-5
IC9-4
IC6-1
IC6-2
Tab Master Clock (500kHz)
TG (MCT) MCT (44)
Mono-Tone Master Clock (500kHz)
TG (MCM) MCM (42)
IC8-3
IC8-4
IC10-4
IC6-5
Clock Signal Selector
AS (SNS) SNS (26)
Power Down Control
MIX (RES)
BAS (RES)
PPS (RES)
SPS (RES)
OPS (RES)
RES (60)
Reset
TGM IC2 (CN8-11)
TGM Initial Clear
IC9-2
IC6-4
IC9-3
IC6-5
POW.ON
POW.OFF
+5V
RES
NMI
RES (60)
IC(2) (CN8-11)
PD7 PD6 PD5 PD4 PD3 PD2 PD1 PD0
Common Bus
ALE
Address Bus (MSB)
PF7 PF6 PF5 PF4 PF3 PF2 PF1 PF0
WR
RD
Z1 4.7K
Z2 4.7K
IC8-2
IC8-1
IC12
Decoder
R30 4.7K
R31 4.7K
IC6-3
IC2
Address, Data Latch
S00
S01
CK1
DWR
DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0
Data Bus
AB7 AB6 AB5 AB4 AB3 AB2 AB1 AB0
Address Bus (LSB)
AL0 AL1 AL2 AL3 AL4 AL5 AL6 AL7
Address Latch Data
Power Supply for Backup
External ROM
IC4
External RAM
IC5
Q4
Q5
Q6
R73 1/4 100
BUC (6)
C41 50V1
Memory Back Up
2.3V 3.3F x 3
Low Pass Filter
(for Tremolo/Chorus Modulation)
IC17-1
IC17-2
CK (41) TG (CK)
Clock (1MHz)
Tremolo
Chorus
2~28Hz
0.5~7Hz
LMF (49)
LMS (50)
Tremolo:2~28Hz, Chorus:2Hz LPM (LMF)
Tremolo:7Hz, Chorus:0.5Hz LPM (LMS)
TG (MCTC)
TG (MCMC)
MCTC (45)
MCMC (43)
Master Clock Control
IC3
D-A Comverter
IC7
IC10-2
Decoder
Low-Pass Filter for Control Voltage
Expression
Bass
Phythm
String Ensemble
(Upper)
(Lower)
Reverb
Vocal Ensemble
IC15-2
IC15-1
IC16-1
IC18-2
IC18-1
IC19-1
IC16-2
Low-Pass Filter (for Record check signal)
NVCV (7) MIX (NVCV)
PVCV (11) BAS (PVCV)
RVCV (10) DP (RVCV)
USCV (1) PCT (USCV)
ECCV (8) MIX (ECCV)
LSCV (2) PCT (LSCV)
SFR (9) MIX (SFR)
A23 (57) OPS (A23)
A24 (52) DP (A24)
A25 (54) SEL (A25)
A26 (56) PPS (A26)
A27 (58) Acc (A27)
A28 (55) SPS (A28)
A29 (53) BAS (A29)
DB7 (68) DB6 (67) DB5 (66) DB4 (65) DB3 (64) DB2 (63) DB1 (62) DB0 (61)
Data Bus PCT, PPS OPS, Acc SPS, SEL BAS, DP
DWR (CN8-9) Strobo TGM
Data Bus TGM
AB7 (CN9-8)
Address Bus TGM
AB0 (59) OPS Acc SEL DP

NOTES:
- IC'S
  - IC1: SVIG7811G028
  - IC2: SVIG65002014
  - IC3: SVIG65002017
  - IC4: SVIG3256PC37
  - IC5: SVIGM512820R
  - IC6: SVIGTC40H004
  - IC7, 12: SVIGM74LS138
  - IC8: SVIGM74LS32
  - IC9: SVIGM53216
  - IC10: SVIGM74LS00
  - IC15~19: SVIGM5218L (SVIGNJM4558S)
- TRANSISTORS
  - Q1~4: 2SA1015GR
  - Q5: 2SC2320LFG
  - Q6: 2SC1047C
- DIODES
  - D1~3, 5: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1, 2: EXBP88472MM
  - Z3: EXBP84103MM
  - Z4: EXBP86103MM
  - Z5: EXATA223S
- QUARTZ OSCILLATOR
  - X1: SVQG43U1200A

SYSTEM ASSIGNER CIRCUIT BOARD (SAS)

▨ Circuit view on top of P.C.B.

SXPG11276


1
2
3
4
5
A
B
C
D
E
F
CN1
USCV
LSCV
CN2
BUC
NVCV
ECCV
SFR
RVCV
PVCV
PB
CN3
R2
PHC
LEC
CEC
CHC
AUXC
E
CN4
SNS
TXD
RXD
SCK
EOB
CN5
EXP
TEMP
+5
+5
+15
-15
E
E
CK
MCM
MCMC
MCT
MCTC
CN6
LMF
LMS
A24
A29
A25
A28
A26
A23
A27
CN7
ABO
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
CN8
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
DWR
IC1
IC2
CN9
+5
E
ECUS
ECLS
ECPS
AB7
AB6
AB5
AB4
AB3
AB2
AB1
AB0
IC19
IC18
IC15
IC17
IC16
IC6
IC12
IC3
IC1
IC2
IC8
IC9
IC10
IC5
IC4
IC7
Q1
Q2
Q3
Q4
Q5
Q6
D1
D2
D3
D5
X1
Z1
Z2
Z3
Z4
Z5
JP
JP1
JP3
JP4
JP5
VR1 5K
EXP. LEVEL
R87 470K
R88 120K
C46 0.068
R6 180K
R84 470K
R85 120K
C44 0.068
R83 180K
R80 180K
C42 0.068
R82 120K
R81 470K
R57 470K
R58 120K
C28 0.068
R56 180K
R44 180K
C20 0.068
R46 120K
R45 470K
C47 0.01
C45 0.01
C43 0.01
C29 0.01
C21 0.01
R21 10K
C8 0.01
R37 22K
R36 3.3K
C17 0.0068
R39 470K
R40 100K
C16 0.068
R38 120K
R41 120K
C18 0.47
R43 100K
R42 470K
C19 0.047
R48 470K
R49 120K
C22 0.068
R47 180K
R65 22K
C34 0.033
R67 22K
C35 0.0068
C23 0.01
R66 4.7K
C52 0.047
R78 4.7K
R31 4.7K
R7 4.7K
R8 12K
R5 4.7K
R6 12K
R3 4.7K
R4 12K
C36 0.047
R11 33K
R12 15K
C5 0.047
R29 10K
C10 50V1
C51 50V1
R23 18K
R24 10K
R26 33K
R28 2.2K
R79 10K
C1 16V100
C9 220P
R13 47K
R20 33
R18 2.7K
R15 560
R17 330
R19 1K
C60 16V47
C37 0.047
C53 0.047
R1 1/4W22
R2 1/4W22
R22 10K
R92 18K
R30 4.7K
C2 16V100
C6 0.047
C7 0.047
C3 16V100
C54 0.047
C11 22P
C12 22P
R10 1/4W6.8
C4 16V100
R68 4.7K
R69 4.7K
C38 0.047
R27 4.7K
C39 0.047
R75 6.8K
R76 3.3K
R9 18K
R74 2.2K
R73 1/4W100
C55 0.047
MS
C41 50V1
R70 82K
R72 2.7K
R71 47K
R93 47K

NOTES:

- IC'S

IC1:	SVIG7811G028	IC7, 12:	SVIGM74LS138
IC2:	SVIG65002014	IC8:	SVIGM74LS32
IC3:	SVIG65002017	IC9:	SVIGM53216
IC4:	SVIG3256PC37	IC10:	SVIGM74LS00
IC5:	SVIGM512820R	IC15~19:	SVIGM5218L
IC6:	SVIGTC40H004		(SVIGNJM4558S)

- TRANSISTORS

Q1~4:	2SA1015GR
Q5:	2SC2320LFG
Q6:	2SC1047C

- DIODES

D1~3, 5:	MA165TA5VT

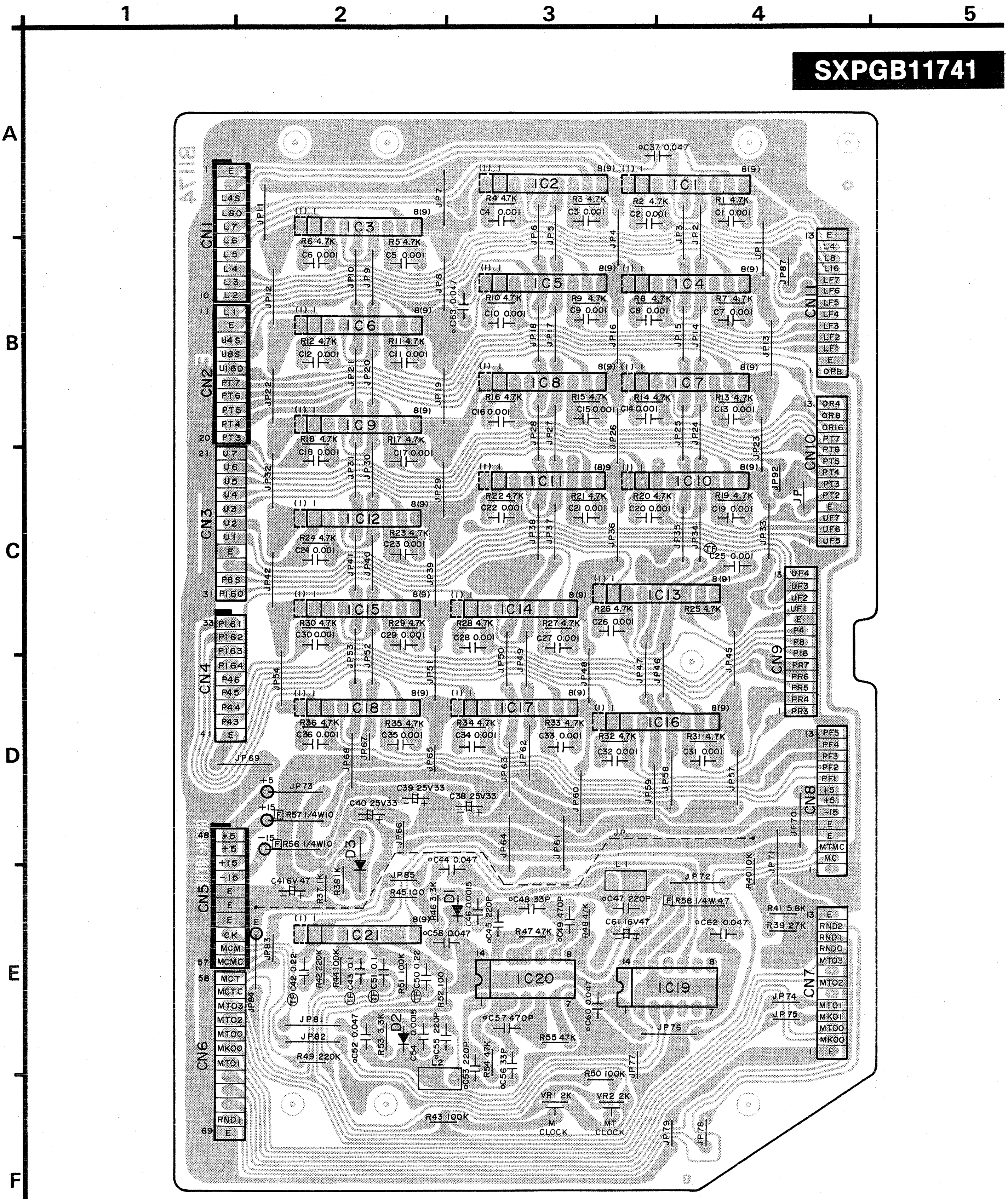
- COMPONENTS COMBINATIONS

Z1, 2:	EXBP88472MM
Z3:	EXBP84103MM
Z4:	EXBP86103MM
Z5:	EXATA223S

- QUARTZ OSCILLATOR

X1:	SVQG43U1200A

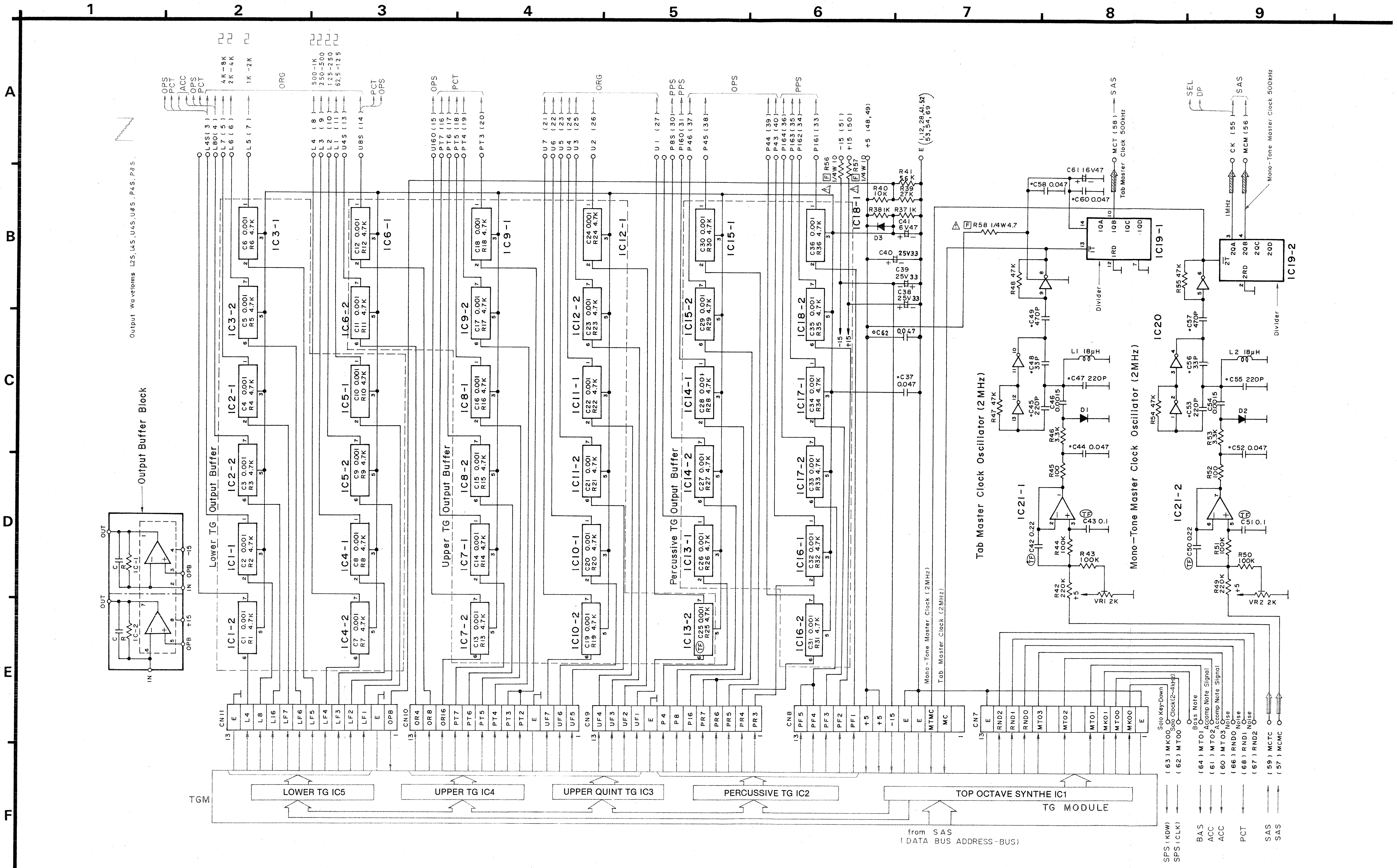
TONE GENERATOR CIRCUIT BOARD (TG)


1
2
3
4
5
A
B
C
D
E
F
SXPGB11741
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
D1
D2
D3
L1
L2
VR1 2K
M CLOCK
VR2 2K
MT CLOCK
R43 100K
R50 100K
R49 220K
R55 47K
R47 47K
R45 100
R41 5.6K
R39 27K
R40 10K
R56 1/4W10
R57 1/4W10
R58 1/4W4.7
C37 0.047
C63 0.047
C62 0.047
C61 16V47
C41 6V47
C40 25V33
C39 25V33
C38 25V33
C44 0.047
C47 220P
C48 33P
C57 470P
C58 0.047
+5
+15
-15
E

NOTES:

- IC'S
  - IC1~18, 21: SVIGM5218L (SVIGNJM4558S)
  - IC19: SVIGTC40H393
  - IC20: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5VT
  - D3: SVDGSM1A02LF
- COILS
  - L1, 2: ELQS180KB

TONE GENERATOR CIRCUIT DIAGRAM (TG)


1
2
3
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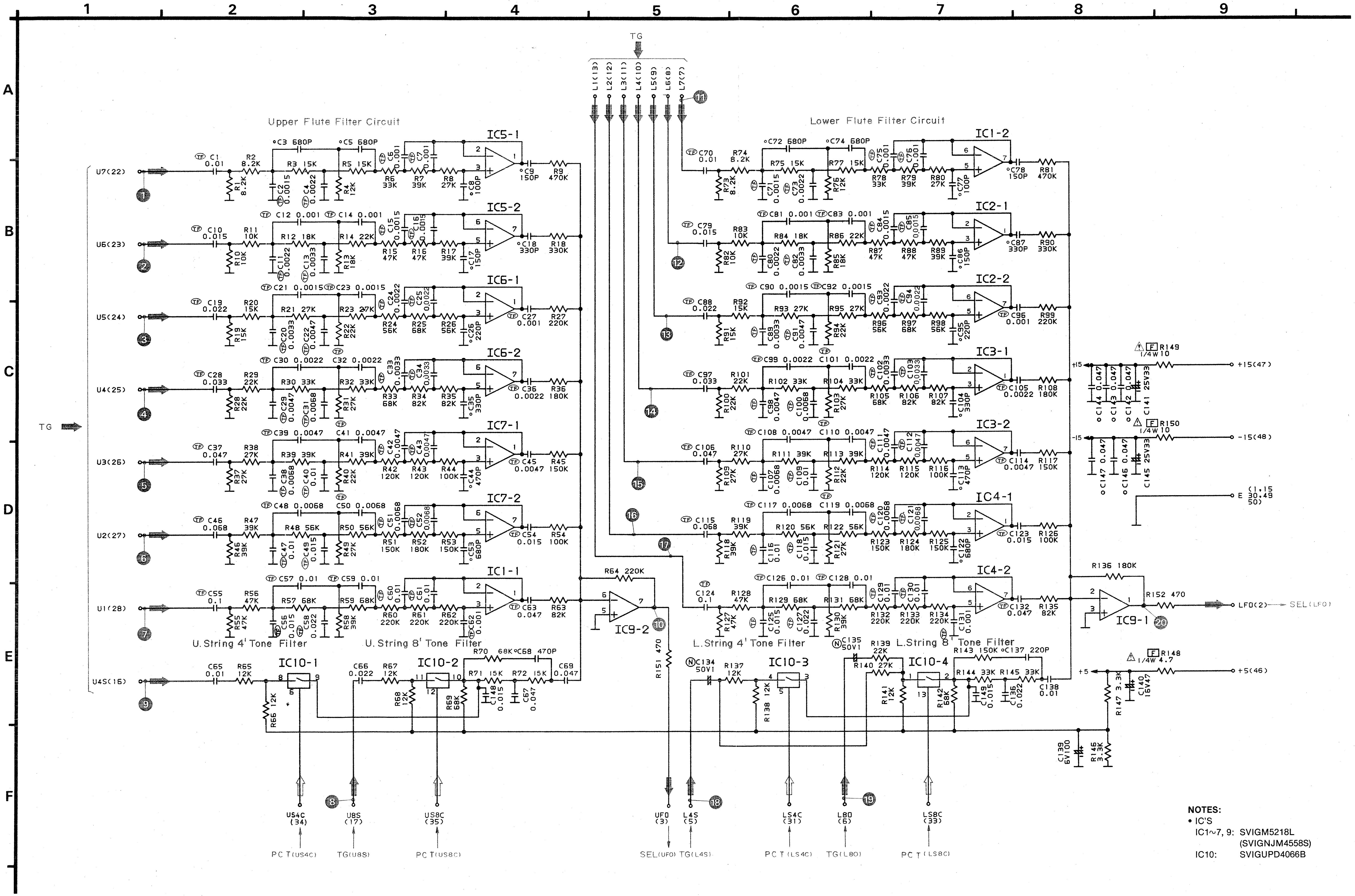
5
6
7
8
9
A
B
C
D
E
F
Output Waveforms L2S, L4S, U4S, U8S, P4S, P8S
Output Buffer Block
OUT
IN
OPB
-15
+15
IC-1
IC-2
C
R
Lower TG Output Buffer
Upper TG Output Buffer
Percussive TG Output Buffer
IC1-1
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC8-1
IC8-2
IC9-1
IC9-2
IC10-1
IC10-2
IC11-1
IC11-2
IC12-1
IC12-2
IC13-1
IC13-2
IC14-1
IC14-2
IC15-1
IC15-2
IC16-1
IC16-2
IC17-1
IC17-2
IC18-1
IC18-2
IC19-1
IC19-2
IC20
IC21-1
IC21-2
OPS
PCT
ACC
ORG
PPS
SAS
SEL
DP
4K-8K
2K-4K
1K-2K
500-1K
250-500
125-250
62.5-125
Tab Master Clock Oscillator (2MHz)
Mono-Tone Master Clock Oscillator (2MHz)
Tab Master Clock 500kHz
Mono-Tone Master Clock 500kHz
Mono-Tone Master Clock (2MHz)
Tab Master Clock (2MHz)
Divider
MCT (58)
CK (55)
MCM (56)
1MHz
L1 18μH
L2 18μH
D1
D2
D3
VR1 2K
VR2 2K
R58 1/4W4.7
R56 1/4W 10
R57 1/4W 10
C40 25V33
C39 25V33
C38 25V33
C41 6V47
C61 16V47
CN11
CN10
CN9
CN8
CN7
LOWER TG IC5
UPPER TG IC4
UPPER QUINT TG IC3
PERCUSSIVE TG IC2
TOP OCTAVE SYNTHE IC1
TG MODULE
TGM
from SAS
(DATA BUS ADDRESS-BUS)
Solo Key-Down
Solo Clock (2~4kHz)
Bass Note
Accomp Note Signal
Noise
SPS (KDW)
SPS (CLK)
BAS
ACC
PCT
SAS

NOTES:

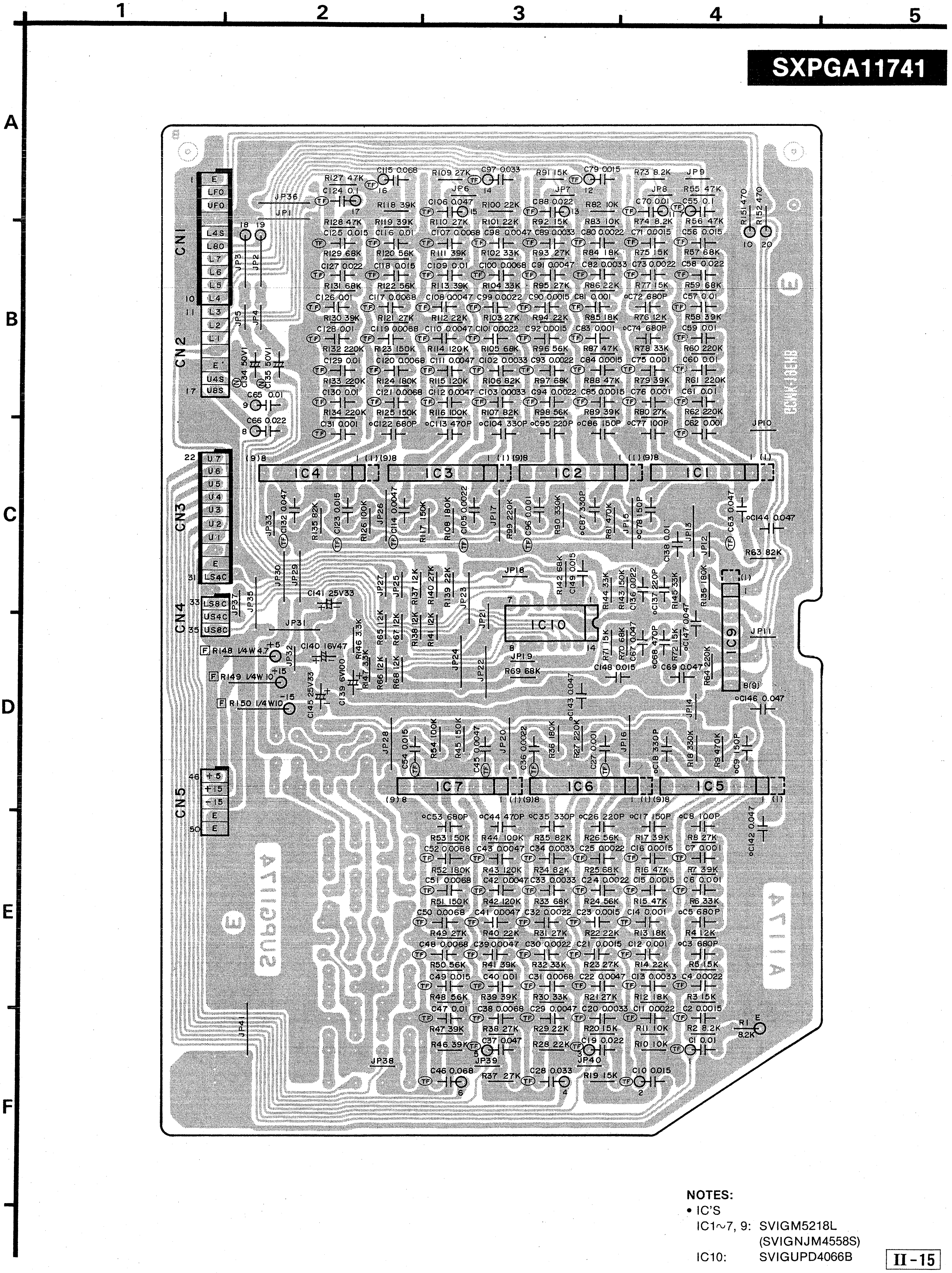
- IC'S
  - IC1~18, 21: SVIGM5218L
    (SVIGNJM4558S)
  - IC19: SVIGTC40H393
  - IC20: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5VT
  - D3: SVDGSM1A02LF
- COILS
  - L1, 2: ELQS180KB

ORGAN CIRCUIT DIAGRAM (ORG)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TG
L1(13)
L2(12)
L3(11)
L4(10)
L5(9)
L6(8)
L7(7)
Upper Flute Filter Circuit
Lower Flute Filter Circuit
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC1-1
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
IC9-1
IC9-2
IC10-1
IC10-2
IC10-3
IC10-4
U7(22)
U6(23)
U5(24)
U4(25)
U3(26)
U2(27)
U1(28)
U4S(16)
TG
U.String 4' Tone Filter
U.String 8' Tone Filter
L.String 4' Tone Filter
L.String 8' Tone Filter
R64 220K
R136 180K
R152 470
R151 470
LFO(2) — SEL(LFO)
+15(47)
-15(48)
E (1,15 30,49 50)
+5(46)
R149 1/4W 10
R150 1/4W 10
R148 1/4W 4.7
C141 25V33
C145 25V33
C139 6V100
C140 16V47
R146 3.3K
R147 3.3K
US4C (34)
U8S (17)
US8C (35)
UFO (3)
L4S (5)
LS4C (31)
L8O (6)
LS8C (33)
PC T(US4C)
TG(U8S)
PC T(US8C)
SEL(UFO)
TG(L4S)
PC T(LS4C)
TG(L8O)
PC T(LS8C)

NOTES:
- IC'S
  IC1~7, 9: SVIGM5218L (SVIGNJM4558S)
  IC10: SVIGUPD4066B

ORGAN CIRCUIT BOARD (ORG)


1
2
3
4
5
A
B
C
D
E
F
SXPGA11741
CN1
CN2
CN3
CN4
CN5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC9
IC10

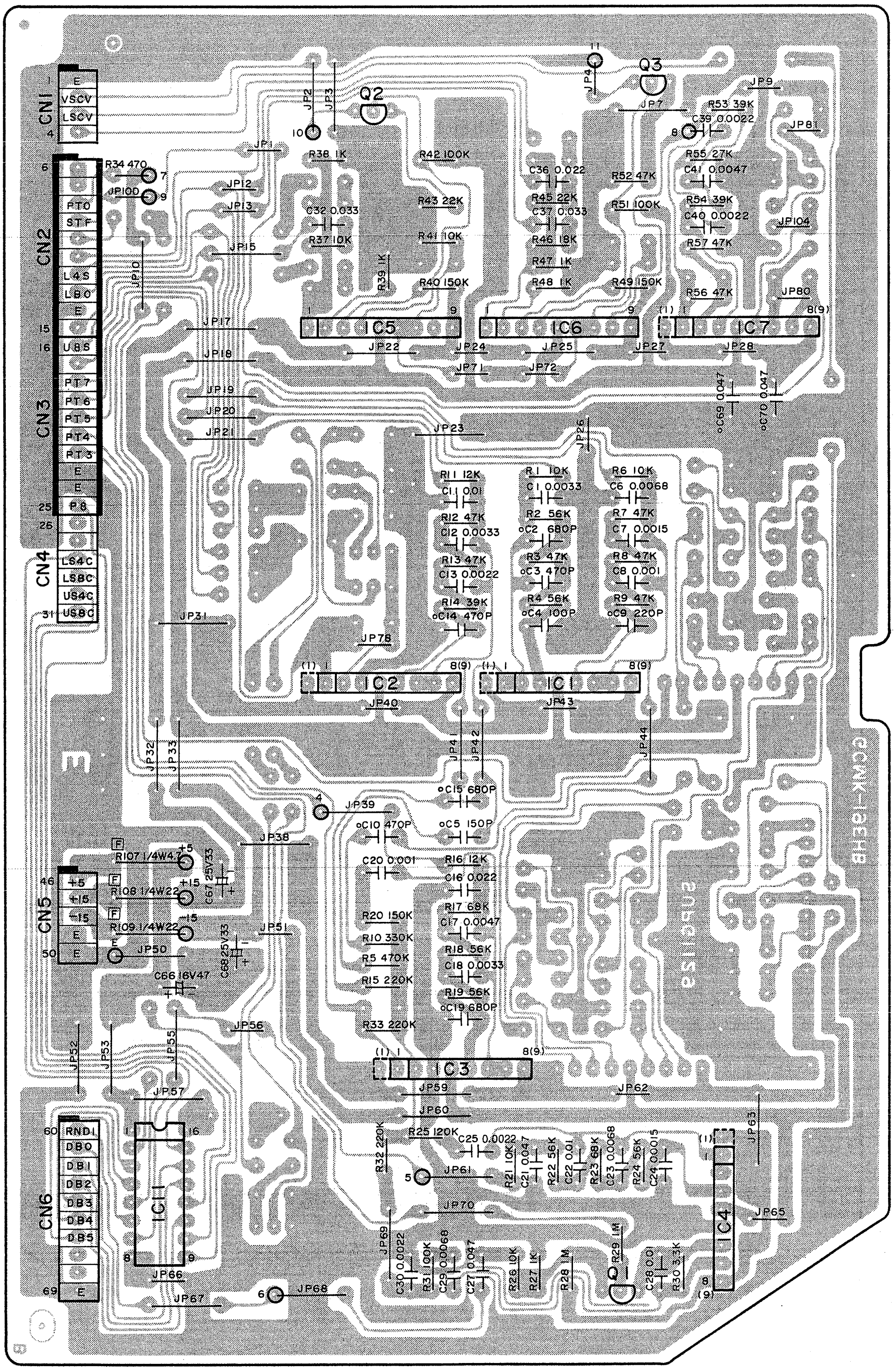
NOTES:
- IC'S
  IC1~7, 9: SVIGM5218L (SVIGNJM4558S)
  IC10: SVIGUPD4066B

PERCUSSIVE TONE CIRCUIT BOARD (PCT)

1 2 3 4 5

A B C D E F

SXPG11293


CN1
E
VSCV
LSCV
CN2
PT0
STF
L4S
LB0
CN3
U8S
PT7
PT6
PT5
PT4
PT3
P8
CN4
LS4C
LS8C
US4C
US8C
CN5
+5
+15
-15
E
CN6
RND1
DB0
DB1
DB2
DB3
DB4
DB5
Q2
Q3
Q1
IC5
IC6
IC7
IC2
IC1
IC3
IC4
IC11
R34 470
JP100
JP1
JP2
JP3
JP4
JP7
JP9
JP81
JP12
JP13
JP15
JP10
JP17
JP18
JP19
JP20
JP21
JP22
JP23
JP24
JP25
JP26
JP27
JP28
JP71
JP72
JP80
JP104
JP31
JP32
JP33
JP38
JP39
JP40
JP41
JP42
JP43
JP44
JP50
JP51
JP52
JP53
JP55
JP56
JP57
JP59
JP60
JP61
JP62
JP63
JP65
JP66
JP67
JP68
JP69
JP70
JP78
R38 1K
R42 100K
C32 0.033
R43 22K
R37 10K
R41 10K
R39 1K
R40 150K
C36 0.022
R45 22K
C37 0.033
R46 18K
R47 1K
R48 1K
R52 47K
R51 100K
R49 150K
R53 39K
C39 0.0022
R55 27K
C41 0.0047
R54 39K
C40 0.0022
R57 47K
R56 47K
C69 0.047
C70 0.047
R11 12K
C11 0.01
R12 47K
C12 0.0033
R13 47K
C13 0.0022
R14 39K
C14 470P
R1 10K
C1 0.0033
R2 56K
C2 680P
R3 47K
C3 470P
R4 56K
C4 100P
R6 10K
C6 0.0068
R7 47K
C7 0.0015
R8 47K
C8 0.001
R9 47K
C9 220P
C15 680P
C10 470P
C5 150P
C20 0.001
R16 12K
C16 0.022
R17 68K
C17 0.0047
R20 150K
R10 330K
R18 56K
R5 470K
C18 0.0033
R15 220K
R19 56K
C19 680P
R33 220K
R107 1/4W4.7
R108 1/4W22
R109 1/4W22
C67 25V33
C68 25V33
C66 16V47
R32 220K
R25 120K
C25 0.0022
R21 10K
C21 0.047
R22 56K
C22 0.01
R23 68K
C23 0.0068
R24 56K
C24 0.0015
C30 0.0022
R31 100K
C29 0.0068
C27 0.047
R26 10K
R27 1K
R28 1M
R29 1M
C28 0.01
R30 3.3K
E
F
GCWK-16EHB

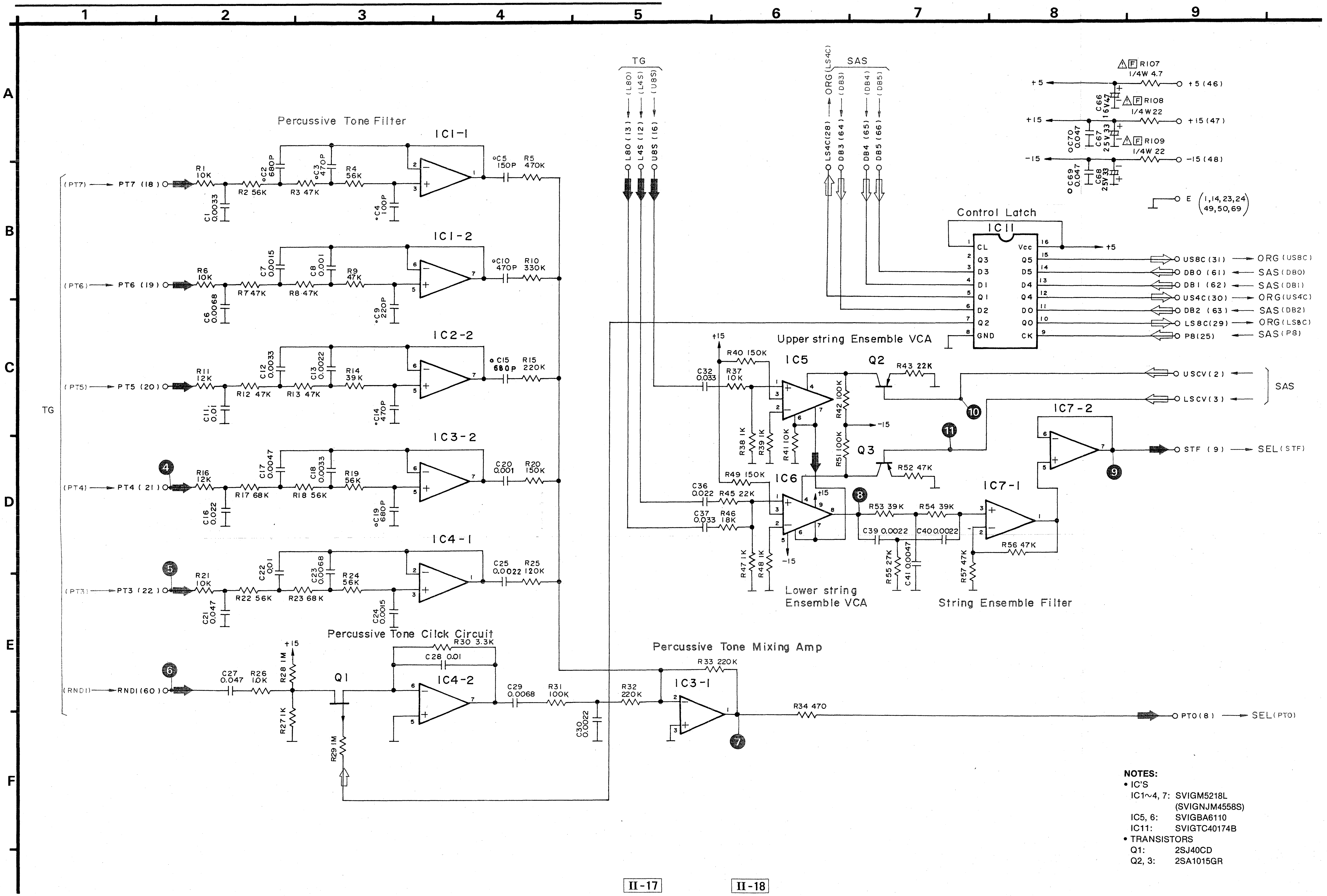
NOTES:
- IC'S

IC1~4, 7: SVIGM5218L (SVIGNJM4558S)
IC5, 6: SVIGBA6110
IC11: SVIGTC40174B

- TRANSISTORS

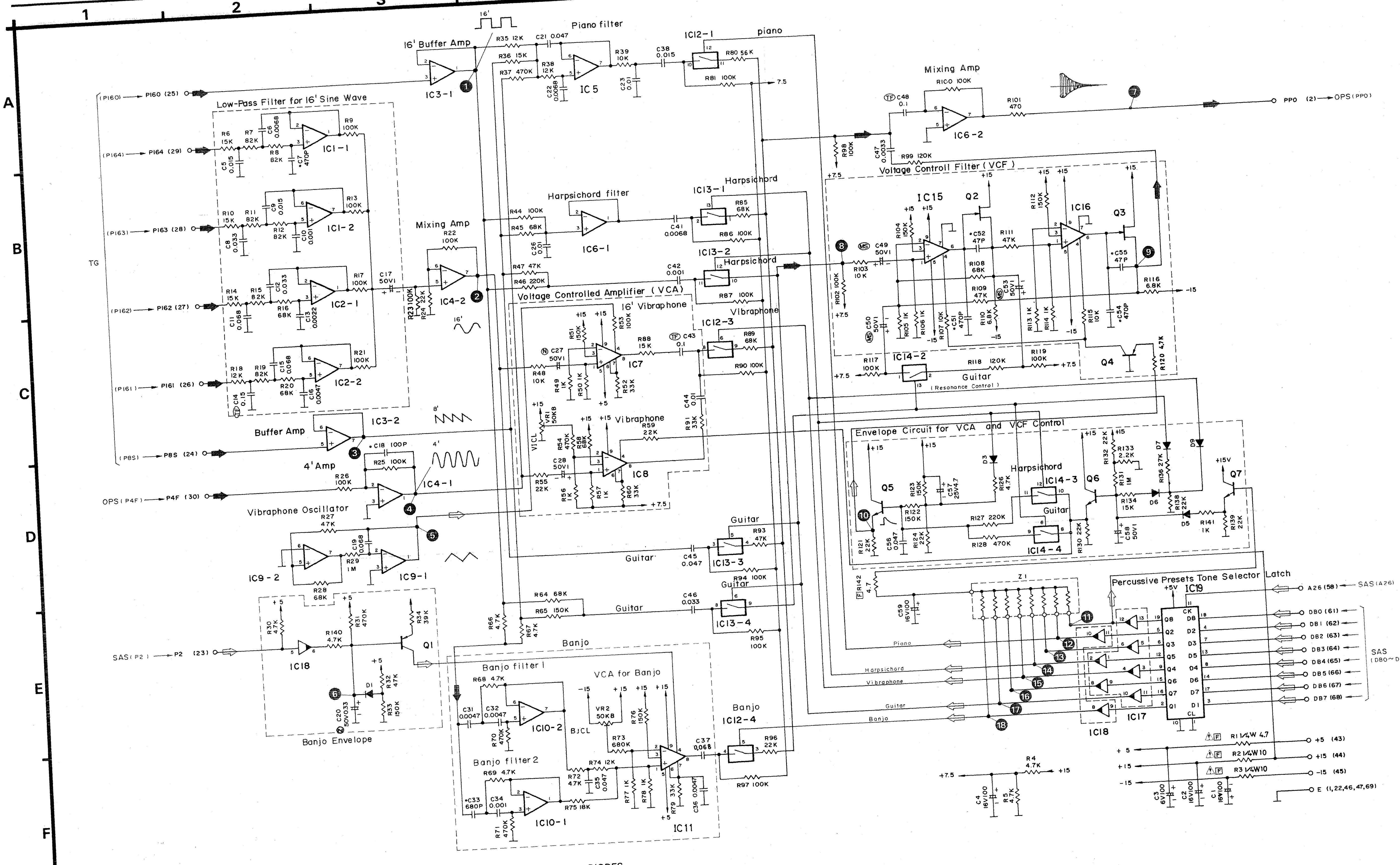
Q1: 2SJ40CD
Q2, 3: 2SA1015GR

PERCUSSIVE TONE CIRCUIT DIAGRAM (PCT)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Percussive Tone Filter
IC1-1
IC1-2
IC2-2
IC3-2
IC4-1
IC4-2
IC3-1
IC5
IC6
IC7-1
IC7-2
IC11
Q1
Q2
Q3
TG
(PT7) PT7 (18)
(PT6) PT6 (19)
(PT5) PT5 (20)
(PT4) PT4 (21)
(PT3) PT3 (22)
(RND1) RND1 (60)
R1 10K
R2 56K
R3 47K
R4 56K
C1 0.0033
C2 680P
C3 470P
C4 100P
C5 150P
R5 470K
R6 10K
R7 47K
R8 47K
R9 47K
C6 0.0068
C7 0.0015
C8 0.001
C9 220P
C10 470P
R10 330K
R11 12K
R12 47K
R13 47K
R14 39K
C11 0.01
C12 0.0033
C13 0.0022
C14 470P
C15 680P
R15 220K
R16 12K
R17 68K
R18 56K
R19 56K
C16 0.022
C17 0.0047
C18 0.0033
C19 680P
C20 0.001
R20 150K
R21 10K
R22 56K
R23 68K
R24 56K
C21 0.047
C22 0.01
C23 0.0068
C24 0.0015
C25 0.0022
R25 120K
Percussive Tone Cilck Circuit
C27 0.047
R26 10K
R28 1M
R27 1K
R29 1M
+15
R30 3.3K
C28 0.01
C29 0.0068
R31 100K
C30 0.0015
Percussive Tone Mixing Amp
R32 220K
R33 220K
R34 470
PTO (8) SEL (PTO)
TG
(L8O) (L4S) (U8S)
L8O (13)
L4S (12)
U8S (16)
SAS
ORG (LS4C)
(DB3) (DB4) (DB5)
LS4C (28)
DB3 (64)
DB4 (65)
DB5 (66)
Control Latch
CL Q3 D3 D1 Q1 D2 Q2 GND
Vcc Q5 D5 D4 Q4 D0 Q0 CK
+5
US8C (31) ORG (US8C)
DB0 (61) SAS (DB0)
DB1 (62) SAS (DB1)
US4C (30) ORG (US4C)
DB2 (63) SAS (DB2)
LS8C (29) ORG (LS8C)
P8 (25) SAS (P8)
R107 1/4W 4.7
+5 (46)
C66 16V47
R108 1/4W 22
+15 (47)
C70 0.047
C67 25V33
R109 1/4W 22
-15 (48)
C69 0.047
C68 25V33
E (1,14,23,24 49,50,69)
Upper string Ensemble VCA
R40 150K
C32 0.033
R37 10K
R38 1K
R39 1K
R41 10K
R42 100K
R51 100K
R43 22K
R52 47K
-15
USCV (2)
LSCV (3)
SAS
R49 150K
C36 0.022
R45 22K
C37 0.033
R46 18K
R47 1K
R48 1K
Lower string Ensemble VCA
R53 39K
R54 39K
C39 0.0022
C40 0.0022
R55 27K
C41 0.0047
R57 47K
R56 47K
String Ensemble Filter
STF (9) SEL (STF)
④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

NOTES:
- IC'S
  IC1~4, 7: SVIGM5218L
  (SVIGNJM4558S)
  IC5, 6: SVIGBA6110
  IC11: SVIGTC40174B
- TRANSISTORS
  Q1: 2SJ40CD
  Q2, 3: 2SA1015GR

PERCUSSIVE PRESETS CIRCUIT DIAGRAM (PPS)

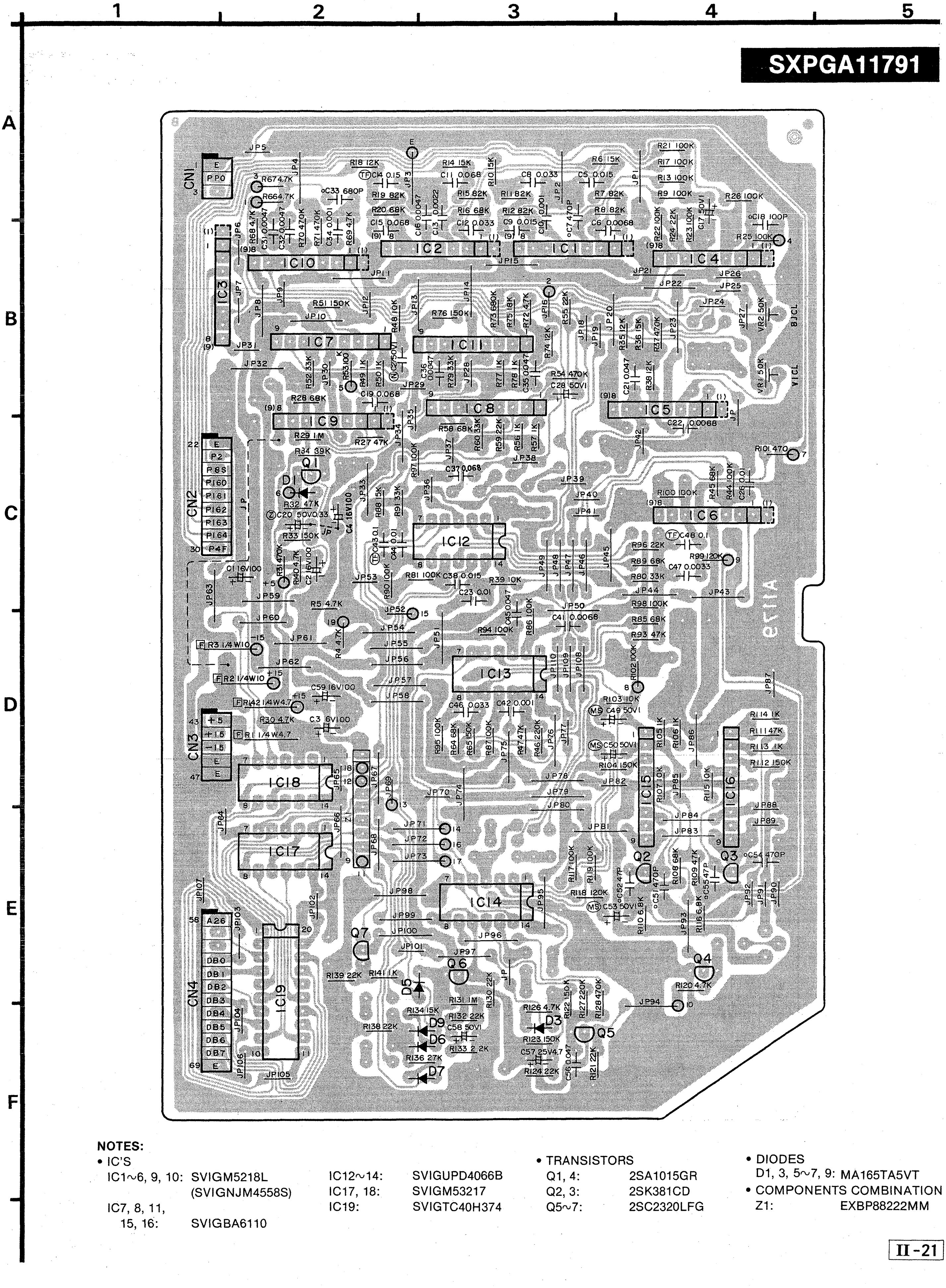

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
16' Buffer Amp
IC3-1
Piano filter
IC5
IC12-1
piano
Mixing Amp
IC6-2
PPO (2) → OPS (PPO)
Low-Pass Filter for 16' Sine Wave
IC1-1
IC1-2
IC2-1
IC2-2
(P160) → P160 (25)
(P164) → P164 (29)
(P163) → P163 (28)
(P162) → P162 (27)
(P161) → P161 (26)
(P8S) → P8S (24)
TG
Mixing Amp
IC4-2
Harpsichord filter
IC6-1
IC13-1
Harpsichord
IC13-2
Harpsichord
Vibraphone
Voltage Controlled Amplifier (VCA)
16' Vibraphone
IC7
IC12-3
Vibraphone
IC8
VICL
Buffer Amp
IC3-2
4' Amp
IC4-1
OPS (P4F) → P4F (30)
Vibraphone Oscillator
IC9-2
IC9-1
Guitar
IC13-3
Guitar
IC13-4
Voltage Controll Filter (VCF)
IC15
Q2
IC16
Q3
Q4
IC14-2
Guitar
(Resonance Control)
Envelope Circuit for VCA and VCF Control
Q5
Harpsichord
IC14-3
Q6
Q7
Guitar
IC14-4
Banjo
Banjo filter 1
IC10-2
VCA for Banjo
BJCL
IC12-4
Banjo filter 2
IC10-1
IC11
SAS (P2) → P2 (23)
IC18
Q1
Banjo Envelope
Percussive Presets Tone Selector Latch
IC19
A26 (58) → SAS (A26)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
SAS (DB0~DB7)
IC17
IC18
Z1
Piano
Harpsichord
Vibraphone
Guitar
Banjo
+5 (43)
+15 (44)
-15 (45)
E (1, 22, 46, 47, 69)
R1 1/4W 4.7
R2 1/4W 10
R3 1/4W 10

NOTES:

- IC'S
  - IC1~6, 9, 10: SVIGM5218L (SVIGNJM4558S)
  - IC7, 8, 11, 15, 16: SVIGBA6110
  - IC12~14: SVIGUPD4066B
  - IC17, 18: SVIGM53217
  - IC19: SVIGTC40H374
- TRANSISTORS
  - Q1, 4: 2SA1015GR
  - Q2, 3: 2SK381CD
  - Q5~7: 2SC2320LFG
- DIODES
  - D1, 3, 5~7, 9: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88222MM

PERCUSSIVE PRESETS CIRCUIT BOARD (PPS)

SXPGA11791


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
Q1
Q2
Q3
Q4
Q5
Q6
Q7
D1
D3
D5
D6
D7
D9
Z1
VR1 50K
VR2 50K
VICL
BJCL
E
PPO
P2
P8S
P160
P161
P162
P163
P164
P4F
+5
+15
-15
A26
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7

NOTES:

- IC'S

IC1~6, 9, 10: SVIGM5218L (SVIGNJM4558S)

IC7, 8, 11, 15, 16: SVIGBA6110

IC12~14: SVIGUPD4066B

IC17, 18: SVIGM53217

IC19: SVIGTC40H374

- TRANSISTORS

Q1, 4: 2SA1015GR

Q2, 3: 2SK381CD

Q5~7: 2SC2320LFG

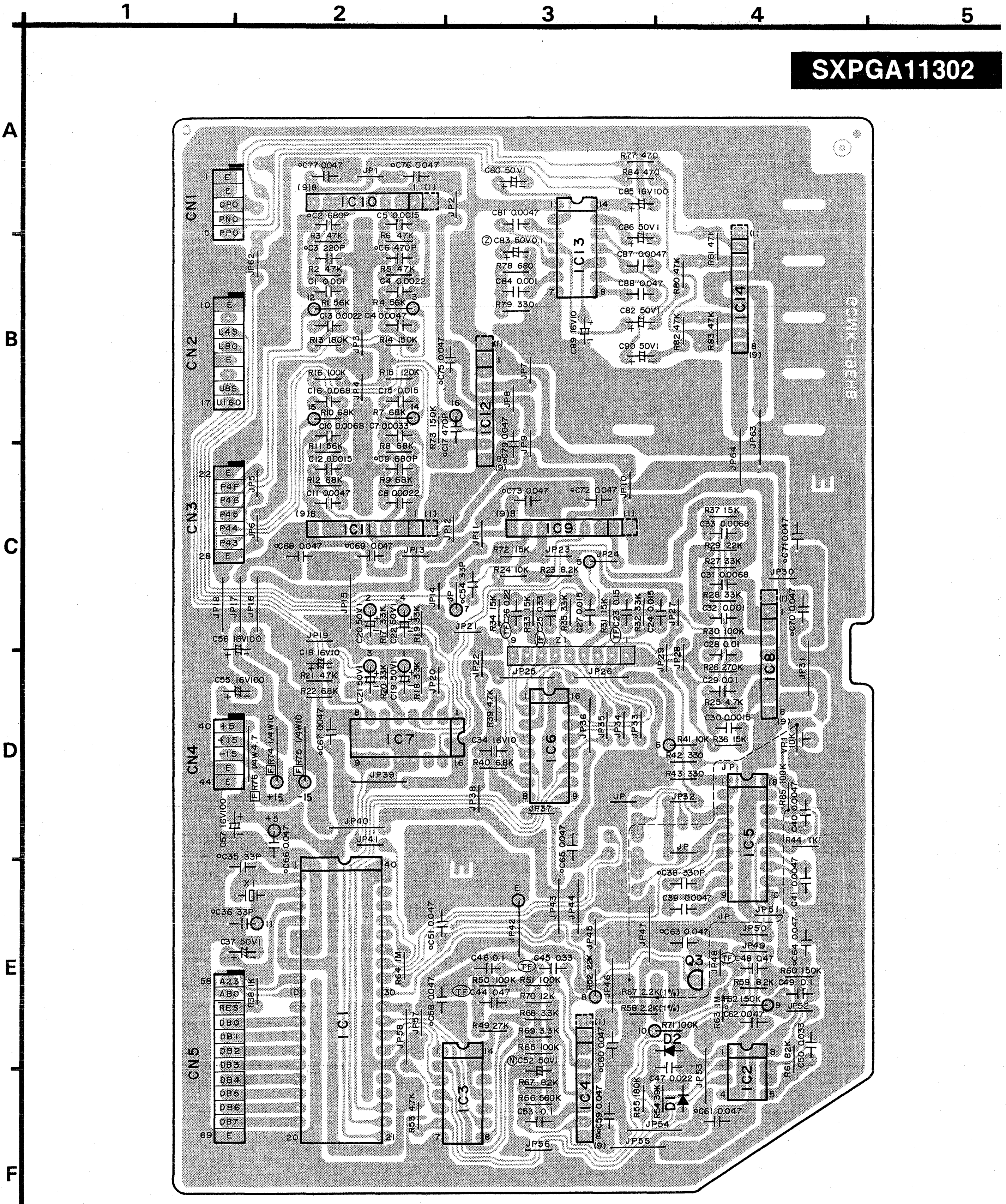
- DIODES

D1, 3, 5~7, 9: MA165TA5VT

- COMPONENTS COMBINATION

Z1: EXBP88222MM

ORCHESTRAL PRESETS CIRCUIT BOARD (OPS)


1
2
3
4
5
A
B
C
D
E
F
SXPGA11302
CN1
E
E
OPO
PNO
PPO
CN2
E
L4S
L8O
E
U8S
U16O
CN3
E
P4F
P46
P45
P44
P43
E
CN4
+5
+15
-15
E
E
CN5
A23
ABO
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
Q3
D1
D2
Z1
X1
VR1 10K
+15
-15
+5
E
E
GCMK-19EHB

NOTES:
- IC'S

IC1:	SVIGM8041111	IC5:	SVIGBA6704
IC2:	SVIGNJM082D	IC6:	SVIGHD14051B
IC3:	SVIGTC40H004	IC7:	SVIGTC4053BP
IC4, 8~12, 14:	SVIGM5218L (SVIGNJM4558S)	IC13:	SVIGLM1894N

- TRANSISTOR

Q3: 2SJ40CD

- DIODES

D1, 2: MA165TA5VT

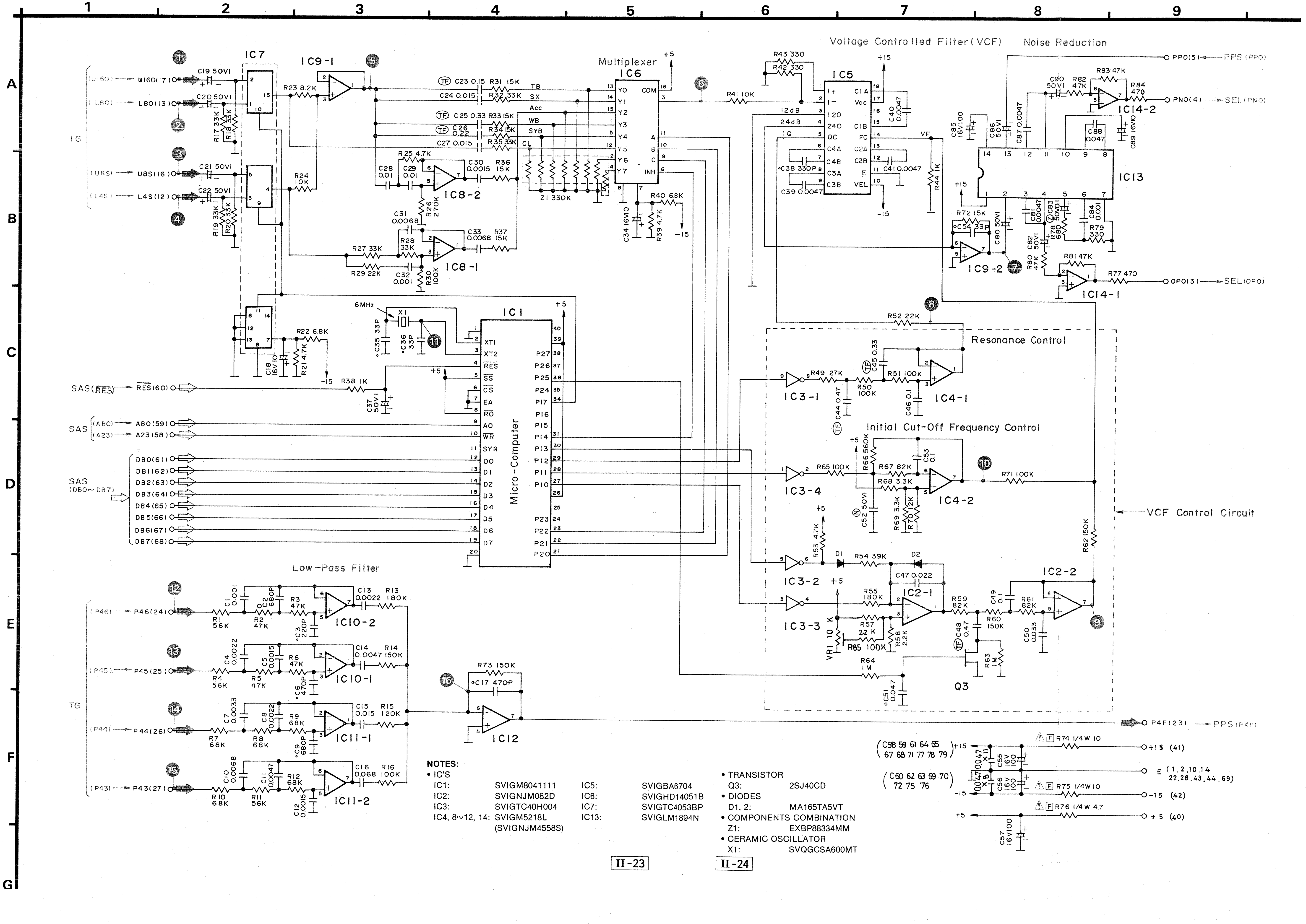
- COMPONENTS COMBINATION

Z1: EXBP88334MM

- CERAMIC OSCILLATOR

X1: SVQGCSA600MT

ORCHESTRAL PRESETS CIRCUIT DIAGRAM (OPS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
TG
(U160) U160(17)
(L80) L80(13)
(U8S) U8S(16)
(L4S) L4S(12)
IC7
IC9-1
Multiplexer
IC6
Voltage Controlled Filter (VCF)
IC5
Noise Reduction
IC13
IC14-2
IC14-1
IC9-2
IC8-2
IC8-1
Z1 330K
PPO(5) ← PPS (PPO)
PNO(4) → SEL(PNO)
OPO(3) → SEL(OPO)
6MHz
X1
IC1
Micro-Computer
SAS(RES) RES(60)
SAS (AB0) AB0(59)
(A23) A23(58)
SAS (DB0~DB7)
DB0(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
Resonance Control
IC3-1
IC4-1
Initial Cut-Off Frequency Control
IC3-4
IC4-2
VCF Control Circuit
IC3-2
IC2-1
IC2-2
IC3-3
Q3
Low-Pass Filter
(P46) P46(24)
(P45) P45(25)
(P44) P44(26)
(P43) P43(27)
IC10-2
IC10-1
IC11-1
IC11-2
IC12
P4F(23) → PPS (P4F)
+15 (41)
E (1, 2, 10, 14, 22, 28, 43, 44, 69)
-15 (42)
+5 (40)
(C58 59 61 64 65 67 68 71 77 78 79) +15
(C60 62 63 69 70 72 75 76) -15
R74 1/4W 10
R75 1/4W 10
R76 1/4W 4.7

NOTES:

- IC'S

IC1:	SVIGM8041111	IC5:	SVIGBA6704
IC2:	SVIGNJM082D	IC6:	SVIGHD14051B
IC3:	SVIGTC40H004	IC7:	SVIGTC4053BP
IC4, 8~12, 14:	SVIGM5218L (SVIGNJM4558S)	IC13:	SVIGLM1894N

- TRANSISTOR

Q3:	2SJ40CD

- DIODES

D1, 2:	MA165TA5VT

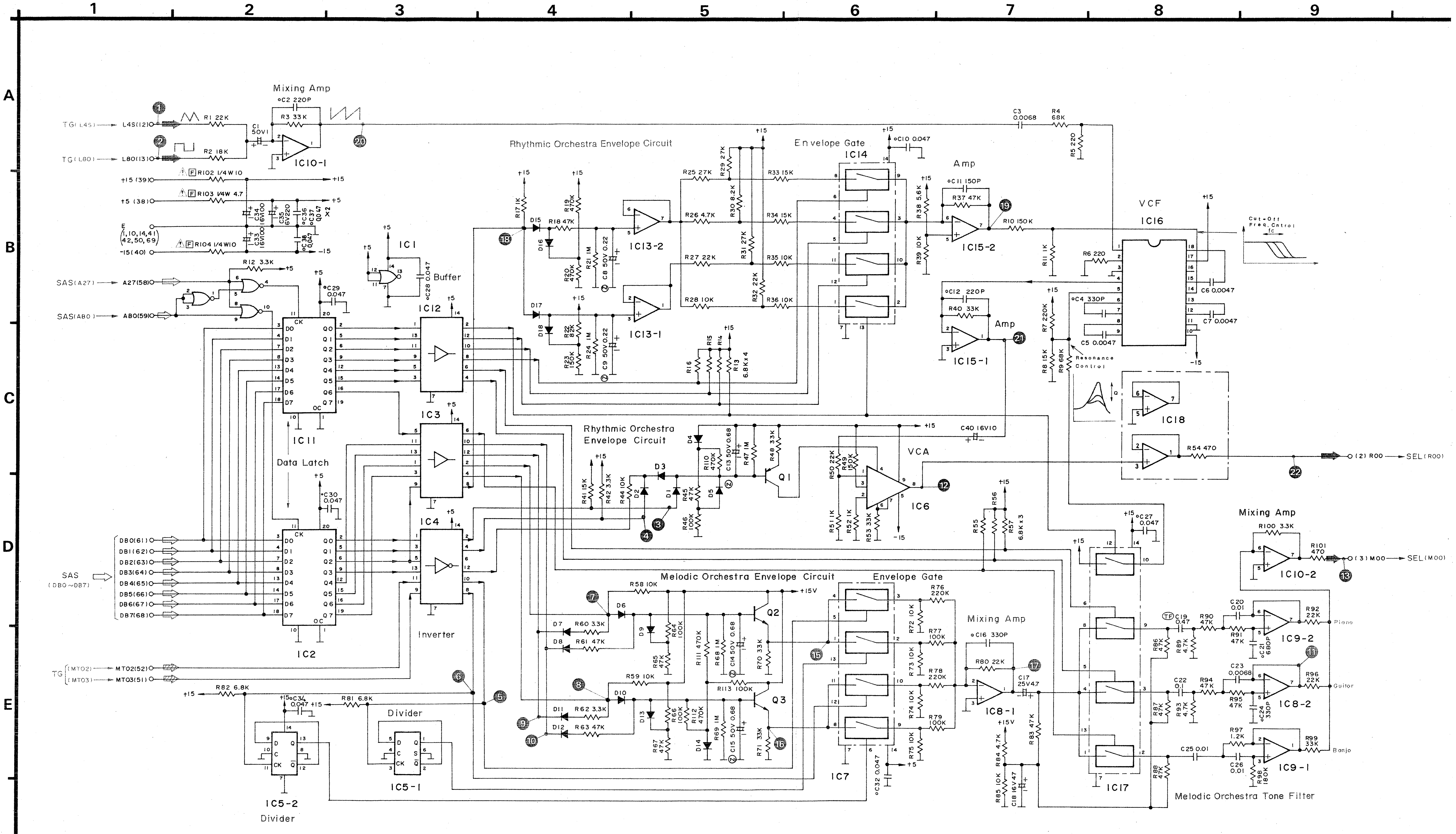
- COMPONENTS COMBINATION

Z1:	EXBP88334MM

- CERAMIC OSCILLATOR

X1:	SVQGCSA600MT

ACCOMPANIMENT CIRCUIT DIAGRAM (ACC)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Mixing Amp
IC10-1
TG(L4S) L4S(12)
TG(L80) L80(13)
+15 (39)
+5 (38)
-15(40)
R102 1/4W10
R103 1/4W 4.7
R104 1/4W10
SAS(A27) A27(58)
SAS(A80) A80(59)
IC1
Buffer
IC12
IC11
Data Latch
IC3
IC4
Inverter
IC2
SAS (DB0~DB7)
DB0(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
TG (MT02) MT02(52)
(MT03) MT03(51)
IC5-2
Divider
IC5-1
Divider
Rhythmic Orchestra Envelope Circuit
IC13-2
IC13-1
Envelope Gate
IC14
Amp
IC15-2
IC15-1
Amp
VCF
IC16
Cut-Off Freq. Cntrol
fc
Resonance Control
IC18
Rhythmic Orchestra Envelope Circuit
Q1
VCA
IC6
(2) R00 SEL(R00)
Mixing Amp
IC10-2
(3) M00 SEL(M00)
Melodic Orchestra Envelope Circuit
Q2
Q3
Envelope Gate
IC7
Mixing Amp
IC8-1
IC17
IC9-2
Piano
IC8-2
Guitar
IC9-1
Banjo
Melodic Orchestra Tone Filter

NOTES:

- IC'S

IC1:	SVIGTC40H002
IC2, 11:	SVIGTC40H374
IC3, 12:	SVIGM53217
IC4:	SVIGM53216
IC5:	SVIGTC4013BP
IC6:	SVIGBA6110
IC7, 14, 17:	SVIGUPD4066B
IC8~10, 13, 15, 18:	SVIGM5218L (SVIGNJM4558S)
IC16:	SVIGBA6704

- TRANSISTORS

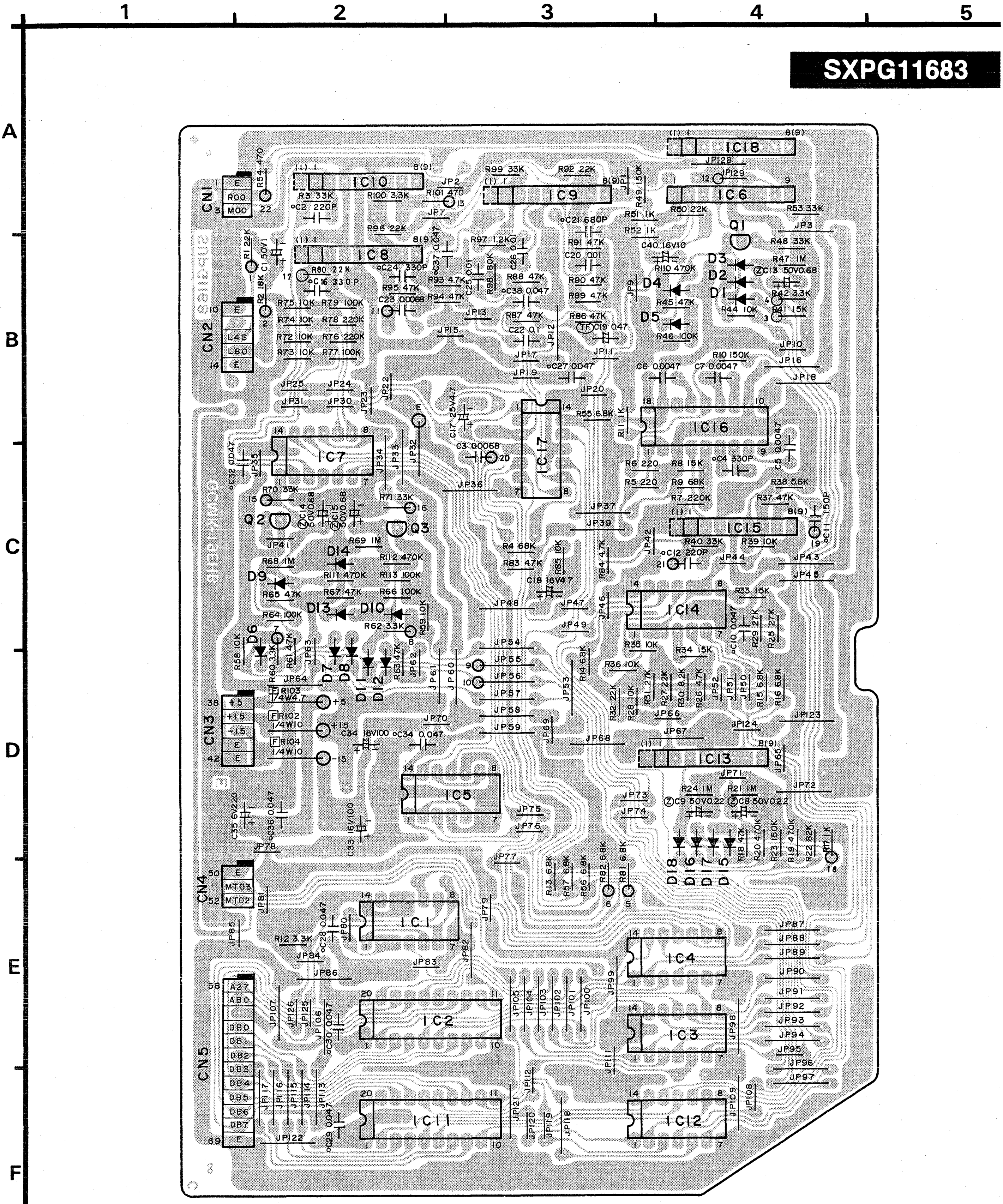
Q1:	2SA1015GR
Q2, 3:	2SC2320LFG

- DIODES

D1~18:	MA165TA5VT

ACCOMPANIMENT CIRCUIT BOARD (ACC)

SXPG11683


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
Q1
Q2
Q3
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
+5
+15
-15
E
R00
M00
L4S
L80
MT03
MT02
A27
AB0
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7

NOTES:

- IC'S

IC1: SVIGTC40H002
IC2, 11: SVIGTC40H374
IC3, 12: SVIGM53217
IC4: SVIGM53216
IC5: SVIGTC4013BP
IC6: SVIGBA6110
IC7, 14, 17: SVIGUPD4066B
IC8~10, 13, 15, 18: SVIGM5218L (SVIGNJM4558S)
IC16: SVIGBA6704

- TRANSISTORS

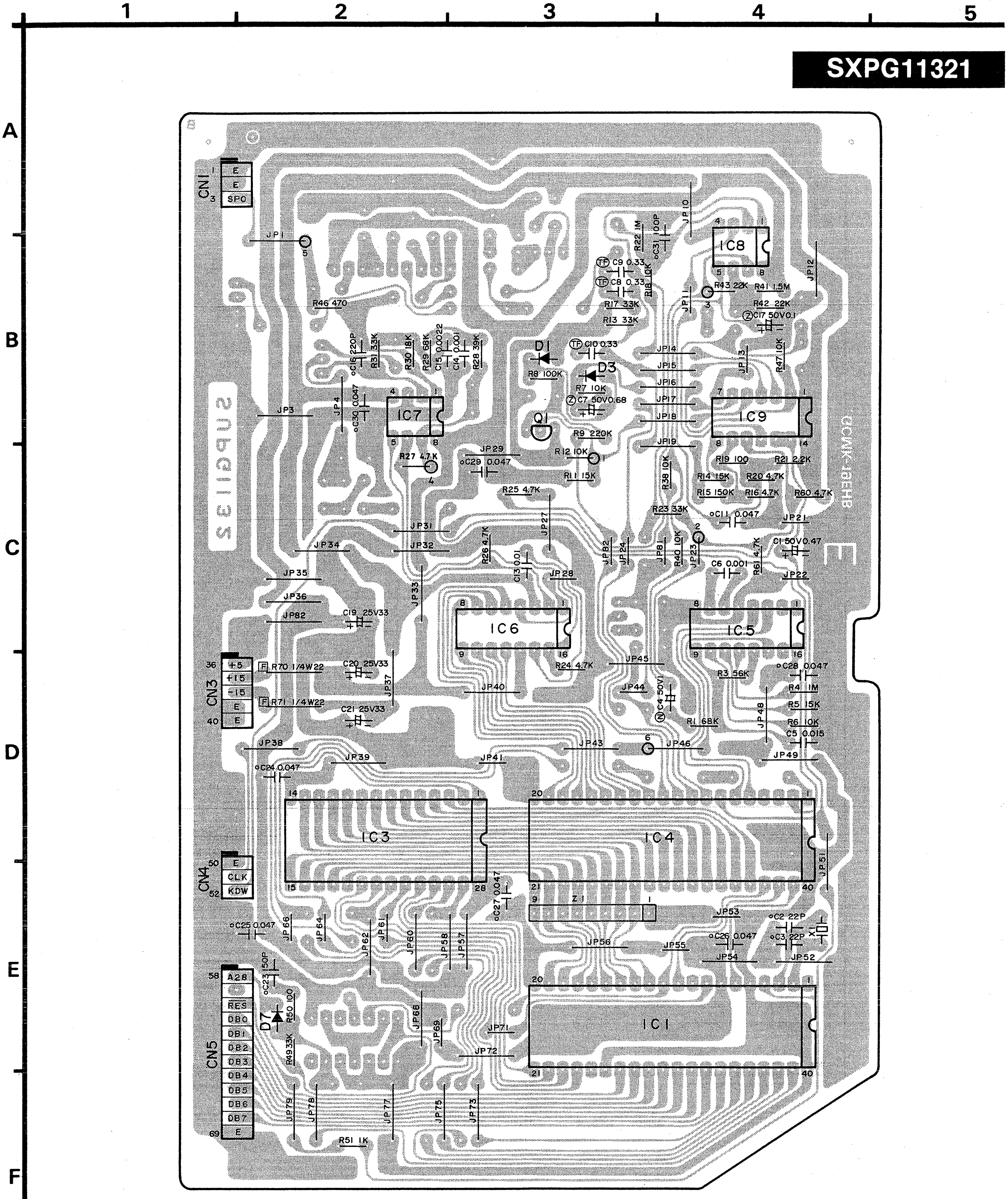
Q1: 2SA1015GR
Q2, 3: 2SC2320LFG

- DIODES

D1~18: MA165TA5VT

SOLO SYNTHE PRESETS CIRCUIT BOARD (SPS)

SXPG11321


1
2
3
4
5
A
B
C
D
E
F
CN1
E
E
SPO
JP1
R46 470
C16 220P
R31 33K
R30 18K
R29 68K
C15 0.0022
C14 0.001
R28 39K
JP3
JP4
C30 0.047
IC7
R27 4.7K
JP29
C29 0.047
D1
R8 100K
D3
R7 10K
C7 50V0.68
C10 0.33
Q1
R9 220K
R12 10K
R11 15K
R25 4.7K
C9 0.33
C8 0.33
R17 33K
R13 33K
R22 1M
R18 10K
C31 100P
JP10
JP11
IC8
R43 22K
R41 1.5M
R42 22K
C17 50V0.1
JP12
JP13
R47 10K
JP14
JP15
JP16
JP17
JP18
JP19
IC9
R19 100
R21 2.2K
R38 10K
R14 15K
R20 4.7K
R15 150K
R16 4.7K
R60 4.7K
R23 33K
C11 0.047
JP21
C1 50V0.47
R61 4.7K
C6 0.001
JP22
JP82
JP24
JP8
R40 10K
JP23
JP31
JP32
JP34
JP27
R26 4.7K
C13 0.01
JP28
JP33
JP35
JP36
JP82
C19 25V33
IC6
IC5
CN3
+5
+15
-15
E
E
R70 1/4W22
R71 1/4W22
C20 25V33
C21 25V33
JP37
JP40
R24 4.7K
JP45
JP44
C4 50V1
R1 68K
R3 56K
C28 0.047
R4 1M
R5 15K
R6 10K
C5 0.015
JP48
JP38
JP39
JP41
JP43
JP46
JP49
C24 0.047
IC3
IC4
CN4
E
CLK
KDW
C27 0.047
Z1
JP51
JP53
C2 22P
C3 22P
X1
C26 0.047
JP54
JP52
JP55
JP56
C25 0.047
JP66
JP64
JP62
JP61
JP60
JP58
JP57
CN5
A28
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
C23 50P
D7
R50 100
R49 33K
JP68
JP69
JP71
JP72
IC1
JP79
JP78
JP77
JP75
JP73
R51 1K
SUPG113 Z
QCMK-1BEHB

NOTES:

- IC'S

IC1: SVIGM8049569
IC3: SVIG23128196
IC4: SVIG65002019
IC5: SVIGHD14046B
IC6: SVIGUPC624C
IC7: AN6552F
IC8: SVIGNJM082D
IC9: SVIGUPD4066B

- TRANSISTOR

Q1: 2SC2320LFG

- DIODES

D1, 3, 7: MA165TA5VT

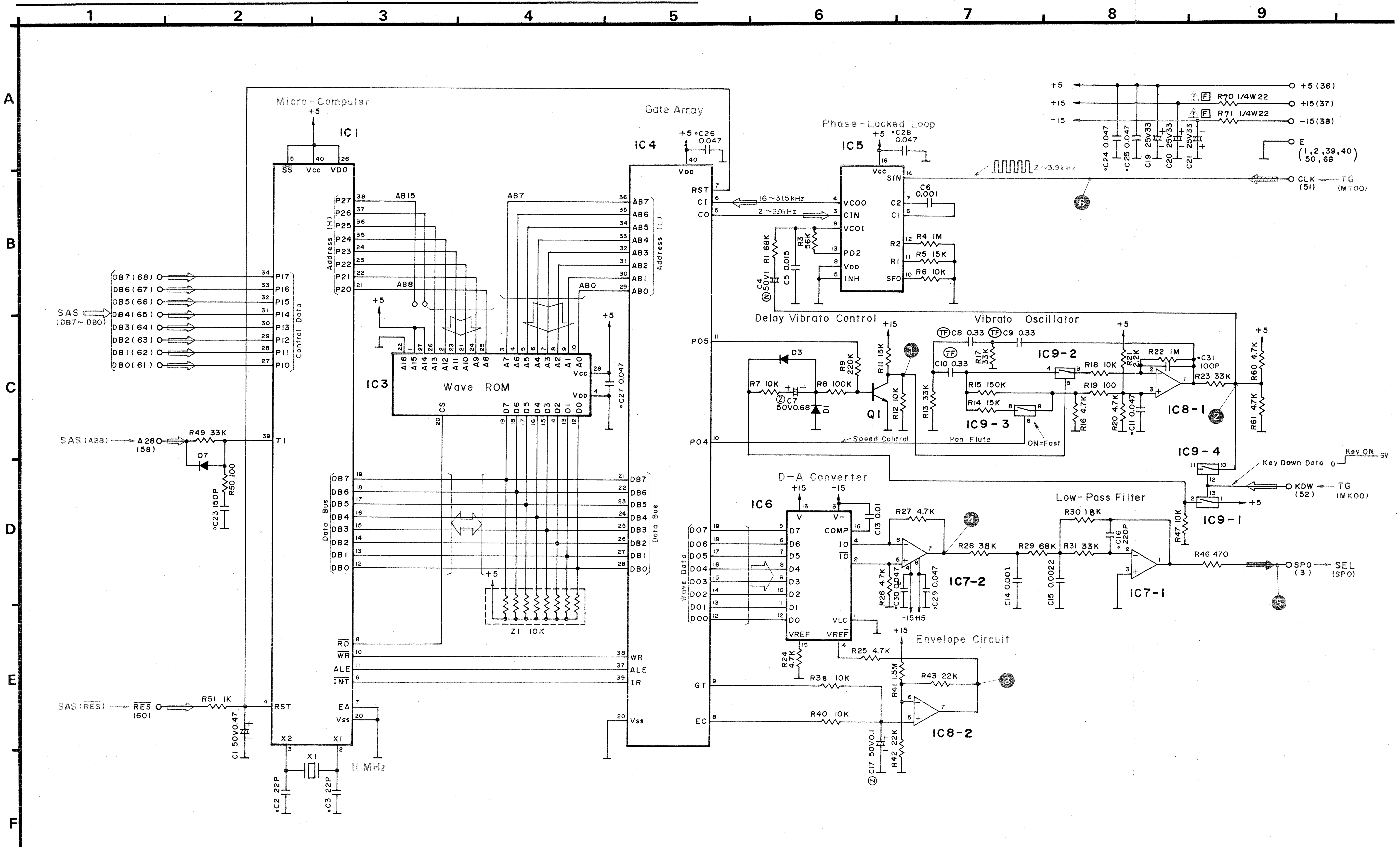
- COMPONENTS COMBINATION

Z1: EXBP88103MM

- CERAMIC OSCILLATOR

X1: SVQGCSA110MT

SOLO SYNTHE PRESETS CIRCUIT DIAGRAM (SPS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro-Computer
IC1
Gate Array
IC4
Phase-Locked Loop
IC5
Wave ROM
IC3
D-A Converter
IC6
Delay Vibrato Control
Vibrato Oscillator
IC9-2
IC9-3
IC8-1
IC9-4
IC9-1
Low-Pass Filter
IC7-2
IC7-1
Envelope Circuit
IC8-2
Q1
Z1 10K
X1
11 MHz
SAS
(DB7~DB0)
DB7(68)
DB6(67)
DB5(66)
DB4(65)
DB3(64)
DB2(63)
DB1(62)
DB0(61)
Control Data
Address (H)
Address (L)
Data Bus
Wave Data
SAS (A28)
A28 (58)
R49 33K
D7
R50 100
C23 150P
SAS (RES)
RES (60)
R51 1K
C1 50V0.47
C2 22P
C3 22P
C27 0.047
C26 0.047
C28 0.047
C6 0.001
R1 68K
R3 56K
C4 50V1
C5 0.015
R4 1M
R5 15K
R6 10K
16~31.5kHz
2~3.9kHz
CLK (51) ← TG (MT00)
+5 (36)
+15 (37)
-15 (38)
R70 1/4W22
R71 1/4W22
C24 0.047
C25 0.047
C19 25V33
C20 25V33
C21 25V33
E (1,2,39,40, 50,69)
D3
R7 10K
C7 50V0.68
D1
R8 100K
R9 220K
R11 15K
R12 10K
R13 33K
C8 0.33
C9 0.33
C10 0.33
R17 33K
R15 150K
R14 15K
R16 4.7K
R18 10K
R19 100
R21 22K
R20 4.7K
C11 0.047
R22 1M
C31 100P
R23 33K
R60 4.7K
R61 4.7K
Speed Control
Pan Flute
ON=Fast
Key ON 5V
Key Down Data 0
KDW (52) ← TG (MK00)
R47 10K
C13 0.01
R27 4.7K
R26 4.7K
C30 0.047
C29 0.047
R28 38K
C14 0.001
R29 68K
C15 0.0022
R30 18K
R31 33K
C16 220P
R46 470
SP0 (3) → SEL (SP0)
R24 4.7K
R25 4.7K
R41 1.5M
R43 22K
R38 10K
R40 10K
C17 50V0.1
R42 22K
1
2
3
4
5
6

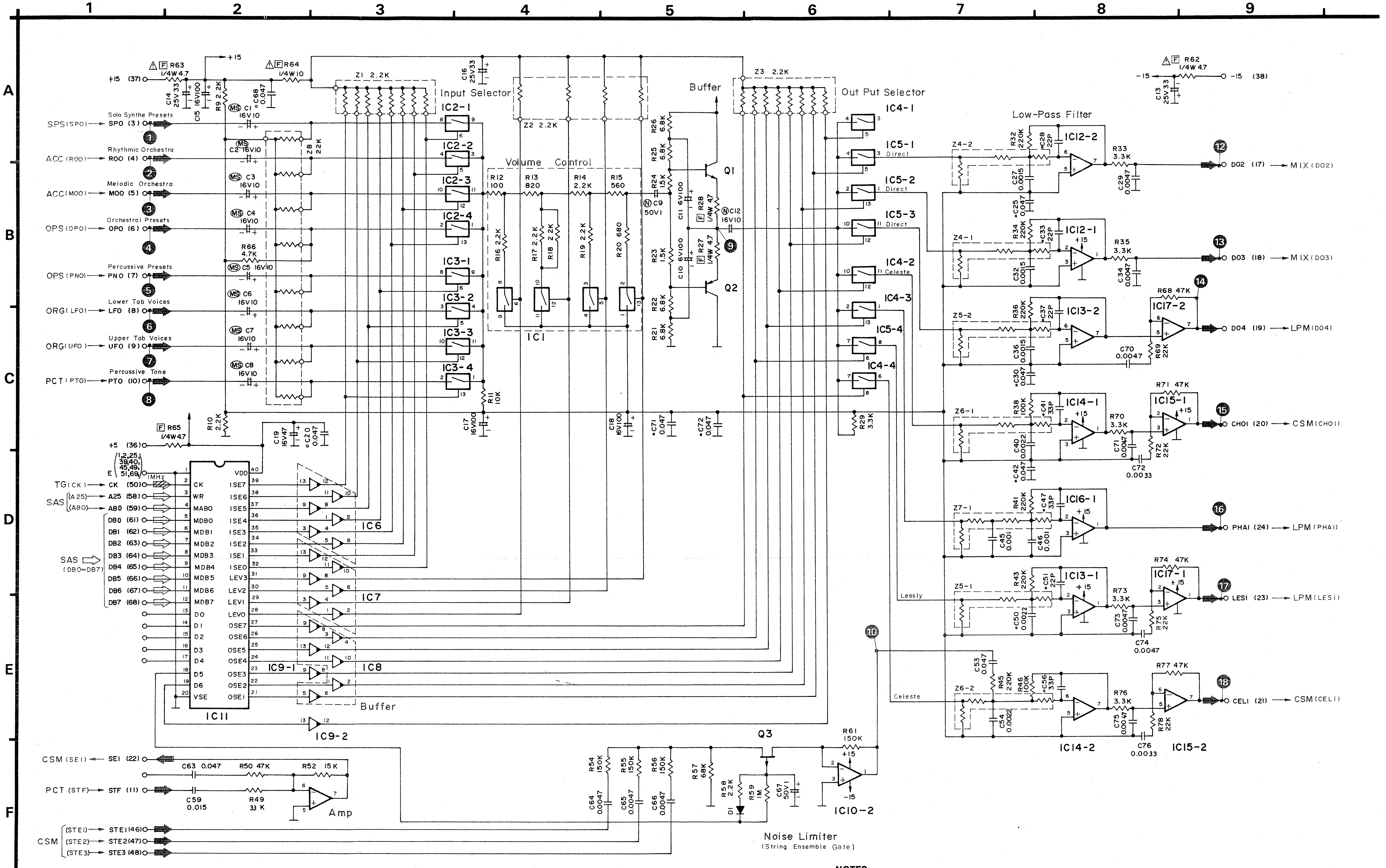
NOTES:

- IC'S

IC1:	SVIGM8049569	IC7:	AN6552F
IC3:	SVIG23128196	IC8:	SVIGNJM082D
IC4:	SVIG65002019	IC9:	SVIGUPD4066B
IC5:	SVIGHD14046B		
IC6:	SVIGUPC624C		

- TRANSISTOR
  - Q1: 2SC2320LFG
- DIODES
  - D1, 3, 7: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88103MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA110MT

SELECTOR CIRCUIT DIAGRAM (SEL)



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
R63 1/4W 4.7
+15 (37)
C14 25V33
C15 16V100
R9 2.2K
C68 0.047
+15
R64 1/4W 10
Z1 2.2K
C16 25V33
Input Selector
Z2 2.2K
Buffer
Z3 2.2K
Out Put Selector
R62 1/4W 4.7
-15
-15 (38)
C13 25V33
Solo Synthe Presets
SPS(SPO) SPO (3)
Rhythmic Orchestra
ACC(ROO) ROO (4)
Melodic Orchestra
ACC(MOO) MOO (5)
Orchestral Presets
OPS(OPO) OPO (6)
Percussive Presets
OPS(PNO) PNO (7)
Lower Tab Voices
ORG(LFO) LFO (8)
Upper Tab Voices
ORG(UFO) UFO (9)
Percussive Tone
PCT(PTO) PTO (10)
C1 16V10
C2 16V10
C3 16V10
C4 16V10
C5 16V10
C6 16V10
C7 16V10
C8 16V10
R66 4.7K
Z8 22K
IC2-1
IC2-2
IC2-3
IC2-4
IC3-1
IC3-2
IC3-3
IC3-4
R11 10K
Volume Control
R12 100
R13 820
R14 2.2K
R15 560
R16 2.2K
R17 2.2K
R18 2.2K
R19 2.2K
R20 680
IC1
R26 6.8K
R25 6.8K
R24 15K
C9 50V1
C11 6V100
R28 1/4W 47
C12 16V10
Q1
Q2
R23 1.5K
C10 6V100
R27 1/4W 4.7
R22 6.8K
R21 6.8K
IC4-1
IC5-1 Direct
IC5-2 Direct
IC5-3 Direct
IC4-2 Celeste
IC4-3
IC5-4
IC4-4
R29 3.3K
Low-Pass Filter
Z4-2
R32 220K
C28 22P
C27 0.0015
C25 0.047
IC12-2
R33 3.3K
C29 0.0047
D02 (17) MIX(D02)
Z4-1
R34 220K
C33 22P
C32 0.0015
IC12-1
R35 3.3K
C34 0.0047
D03 (18) MIX(D03)
Z5-2
R36 220K
C37 22P
C36 0.0015
C30 0.047
IC13-2
C70 0.0047
R68 47K
R69 22K
IC17-2
D04 (19) LPM(D04)
Z6-1
R38 100K
C41 33P
C40 0.0022
C42 0.047
IC14-1
R70 3.3K
C71 0.0047
C72 0.0033
R71 47K
R72 22K
IC15-1
CH01 (20) CSM(CH01)
Z7-1
R41 220K
C47 33P
C45 0.001
C46 0.001
IC16-1
PHA1 (24) LPM(PHA1)
Lessly
Z5-1
R43 220K
C51 22P
C50 0.0022
IC13-1
R73 3.3K
C73 0.0047
C74 0.0047
R74 47K
R75 22K
IC17-1
LES1 (23) LPM(LES1)
Celeste
Z6-2
C53 0.047
R45 220K
R46 100K
C56 33P
C54 0.0022
IC14-2
R76 3.3K
C75 0.0047
C76 0.0033
R77 47K
R78 22K
IC15-2
CEL1 (21) CSM(CEL1)
R10 2.2K
C17 16V100
C18 16V100
C71 0.047
C72 0.047
R65 1/4W 4.7
+5 (36)
C19 16V47
C20 0.047
E (1,2,25, 39,40, 45,49, 51,69)
1MHz
TG(CK) CK (50)
SAS (A25) A25 (58)
(AB0) AB0 (59)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
SAS (DB0~DB7)
CK
WR
MAB0
MDB0
MDB1
MDB2
MDB3
MDB4
MDB5
MDB6
MDB7
D0
D1
D2
D3
D4
D5
D6
VSE
VDD
ISE7
ISE6
ISE5
ISE4
ISE3
ISE2
ISE1
ISE0
LEV3
LEV2
LEV1
LEV0
OSE7
OSE6
OSE5
OSE4
OSE3
OSE2
OSE1
IC11
IC6
IC7
IC8
IC9-1
IC9-2
Buffer
Q3
R61 150K
IC10-2
CSM(SE1) SE1 (22)
C63 0.047
R50 47K
R52 15K
PCT(STF) STF (11)
C59 0.015
R49 33K
Amp
R54 150K
R55 150K
R56 150K
C64 0.0047
C65 0.0047
C66 0.0047
R57 68K
R58 2.2K
R59 1M
C67 50V1
D1
Noise Limiter
(String Ensemble Gate)
CSM (STE1) STE1 (46)
(STE2) STE2 (47)
(STE3) STE3 (48)

NOTES:

- IC'S

IC1~5:	SVIGUPD4066B
IC6~9:	SVIGM53217
IC10, 12~17:	SVIGM5218L (SVIGNJM4558S)
IC11:	SVIG65002018

- TRANSISTORS

Q1:	2SC2320LFG
Q2:	2SA1015GR
Q3:	2SJ40CD

- DIODE

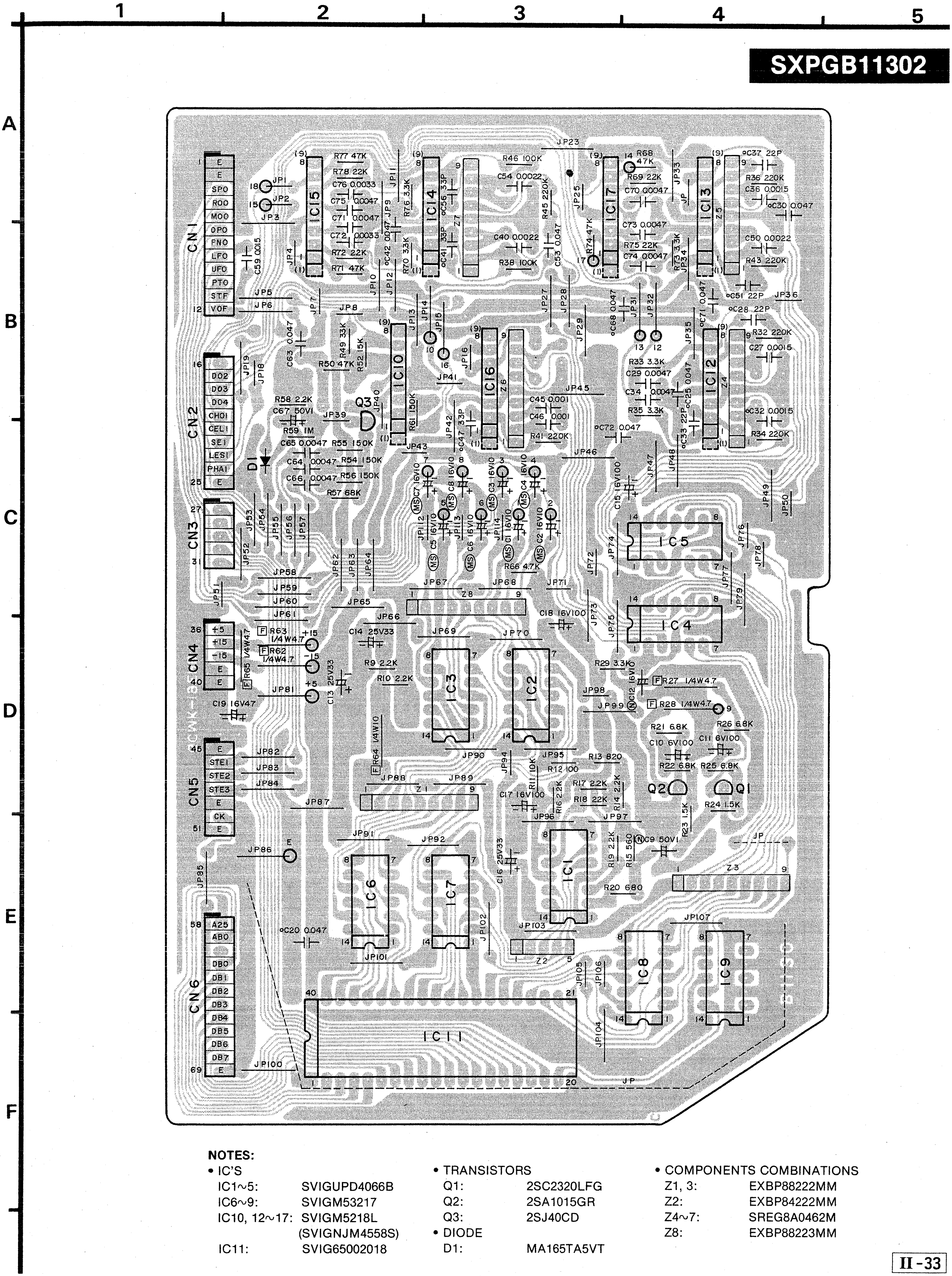
D1:	MA165TA5VT

- COMPONENTS COMBINATIONS

Z1, 3:	EXBP88222MM
Z2:	EXBP84222MM
Z4~7:	SREG8A0462M
Z8:	EXBP88223MM

SELECTOR CIRCUIT BOARD (SEL)

SXPGB11302


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
CN6
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
Q1
Q2
Q3
D1
Z1
Z2
Z3
Z4
Z5
Z6
Z7
Z8
E
E
SPO
ROO
MOO
OPO
FNO
LFO
UFO
PTO
STF
VOF
DO2
DO3
DO4
CHOI
CELI
SEI
LESI
PHAI
+5
+15
-15
E
E
STEI
STE2
STE3
E
CK
E
A25
ABO
DBO
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E

NOTES:

- IC'S

IC1~5: SVIGUPD4066B
IC6~9: SVIGM53217
IC10, 12~17: SVIGM5218L (SVIGNJM4558S)
IC11: SVIG65002018

- TRANSISTORS

Q1: 2SC2320LFG
Q2: 2SA1015GR
Q3: 2SJ40CD

- DIODE

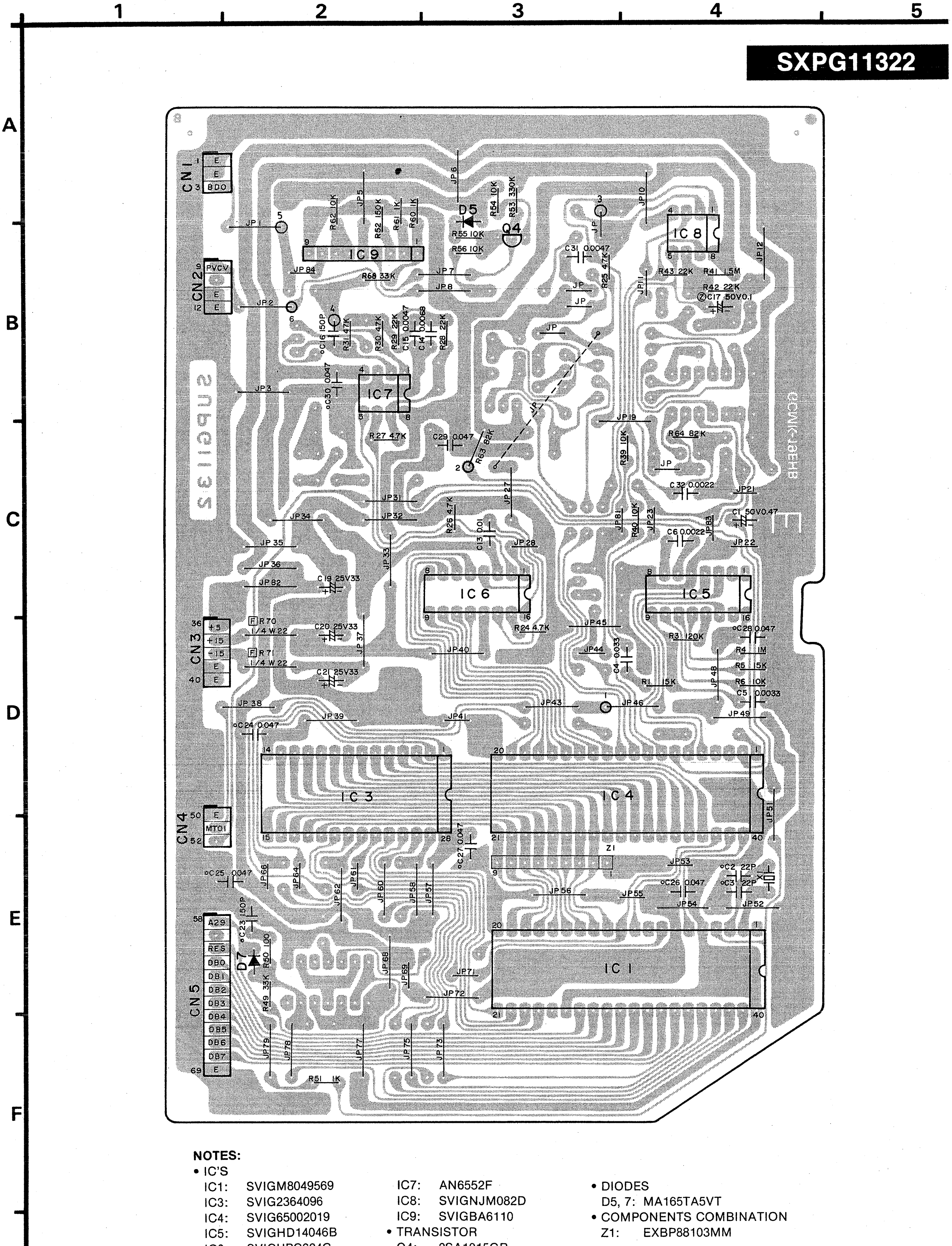
D1: MA165TA5VT

- COMPONENTS COMBINATIONS

Z1, 3: EXBP88222MM
Z2: EXBP84222MM
Z4~7: SREG8A0462M
Z8: EXBP88223MM

BASS CIRCUIT BOARD (BAS)

SXPG11322


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
IC1
IC3
IC4
IC5
IC6
IC7
IC8
IC9
D5
D7
Q4
Z1
X1
BDO
PVCV
+5
+15
-15
MTO1
A29
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
R62 10K
R52 150K
R61 1K
R60 1K
R55 10K
R56 10K
R54 10K
R53 330K
R68 33K
C31 0.0047
R25 4.7K
R43 22K
R41 1.5M
R42 22K
C17 50V0.1
C16 150P
R31 4.7K
R30 4.7K
R29 22K
C15 0.0047
C14 0.0068
R28 22K
C30 0.047
R27 4.7K
C29 0.047
R63 82K
R64 82K
R39 10K
C32 0.0022
C1 50V0.47
R26 4.7K
C13 0.01
R40 10K
C6 0.0022
C19 25V33
R70 1/4 W 22
C20 25V33
R71 1/4 W 22
C21 25V33
R24 4.7K
C4 0.033
R3 120K
C28 0.047
R4 1M
R5 15K
R1 15K
R6 10K
C5 0.0033
C24 0.047
C27 0.047
C25 0.047
C26 0.047
C2 22P
C3 22P
C23 150P
R50 100
R49 33K
R51 1K
SXPG11322

NOTES:

- IC'S

IC1: SVIGM8049569
IC3: SVIG2364096
IC4: SVIG65002019
IC5: SVIGHD14046B
IC6: SVIGUPC624C
IC7: AN6552F
IC8: SVIGNJM082D
IC9: SVIGBA6110

- TRANSISTOR

Q4: 2SA1015GR

- CERAMIC OSCILLATOR

X1: SVQGCSA110MT

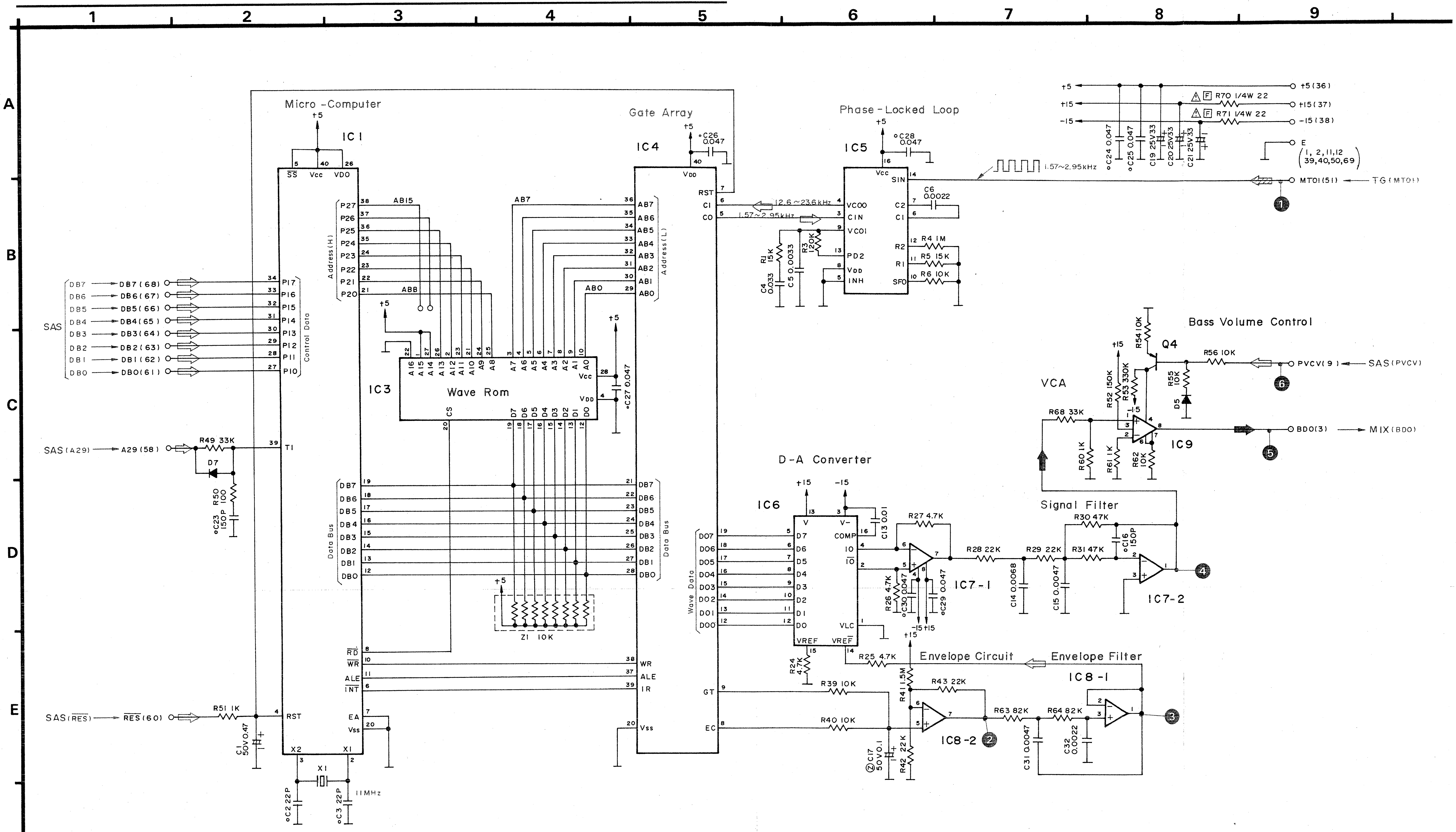
- DIODES

D5, 7: MA165TA5VT

- COMPONENTS COMBINATION

Z1: EXBP88103MM

BASS CIRCUIT DIAGRAM (BAS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro-Computer
IC1
Gate Array
IC4
Phase-Locked Loop
IC5
IC3
Wave Rom
D-A Converter
IC6
IC7-1
IC7-2
Signal Filter
Envelope Circuit
Envelope Filter
IC8-1
IC8-2
Bass Volume Control
Q4
VCA
IC9
SAS
DB7 → DB7(68)
DB6 → DB6(67)
DB5 → DB5(66)
DB4 → DB4(65)
DB3 → DB3(64)
DB2 → DB2(63)
DB1 → DB1(62)
DB0 → DB0(61)
SAS(A29) → A29(58)
SAS(RES) → RES(60)
Control Data
Address(H)
Address(L)
Data Bus
Wave Data
+5(36)
+15(37)
-15(38)
R70 1/4W 22
R71 1/4W 22
E (1, 2, 11, 12 39, 40, 50, 69)
MT01(51) ← TG(MT01)
PVCV(9) ← SAS(PVCV)
BD0(3) → MIX(BD0)
1.57~2.95kHz
12.6~23.6kHz
C24 0.047
C25 0.047
C19 25V33
C20 25V33
C21 25V33
C26 0.047
C28 0.047
C27 0.047
C6 0.0022
R4 1M
R5 15K
R6 10K
R1 15K
R3 120K
C4 0.033
C5 0.0033
R49 33K
D7
R50 100
C23 150P
R51 1K
C1 50V 0.47
X1
11MHz
C2 22P
C3 22P
Z1 10K
C13 0.01
R27 4.7K
R28 22K
R29 22K
R30 47K
R31 47K
C16 150P
C14 0.0068
C15 0.0047
R26 4.7K
C30 0.0047
C29 0.047
R24 4.7K
R25 4.7K
R39 10K
R40 10K
R41 1.5M
R43 22K
R42 22K
C17 50V 0.1
R63 82K
R64 82K
C31 0.0047
C32 0.0022
R54 10K
R56 10K
R55 10K
D5
R52 150K
R53 330K
R68 33K
R60 1K
R61 1K
R62 10K
+5
+15
-15

NOTES:

• IC'S

IC1: SVIGM8049569

IC3: SVIG2364096

IC4: SVIG65002019

IC5: SVIGHD14046B

IC6: SVIGUPC624C

IC7: AN6552F

IC8: SVIGNJM082D

IC9: SVIGBA6110

• TRANSISTOR

Q4: 2SA1015GR

• CERAMIC OSCILLATOR

X1: SVQGCSA110MT

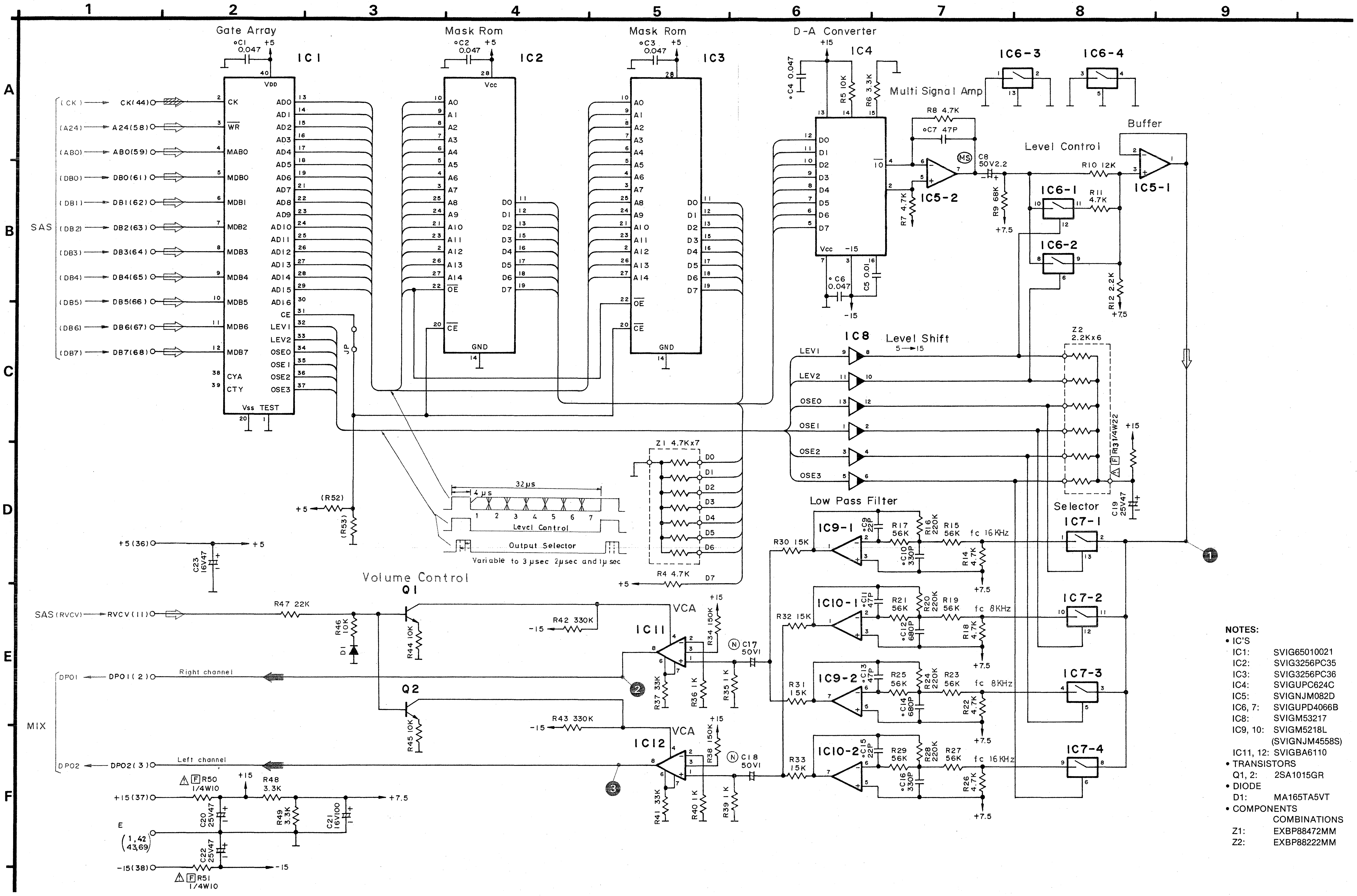
• DIODES

D5, 7: MA165TA5VT

• COMPONENTS COMBINATION

Z1: EXBP88103MM

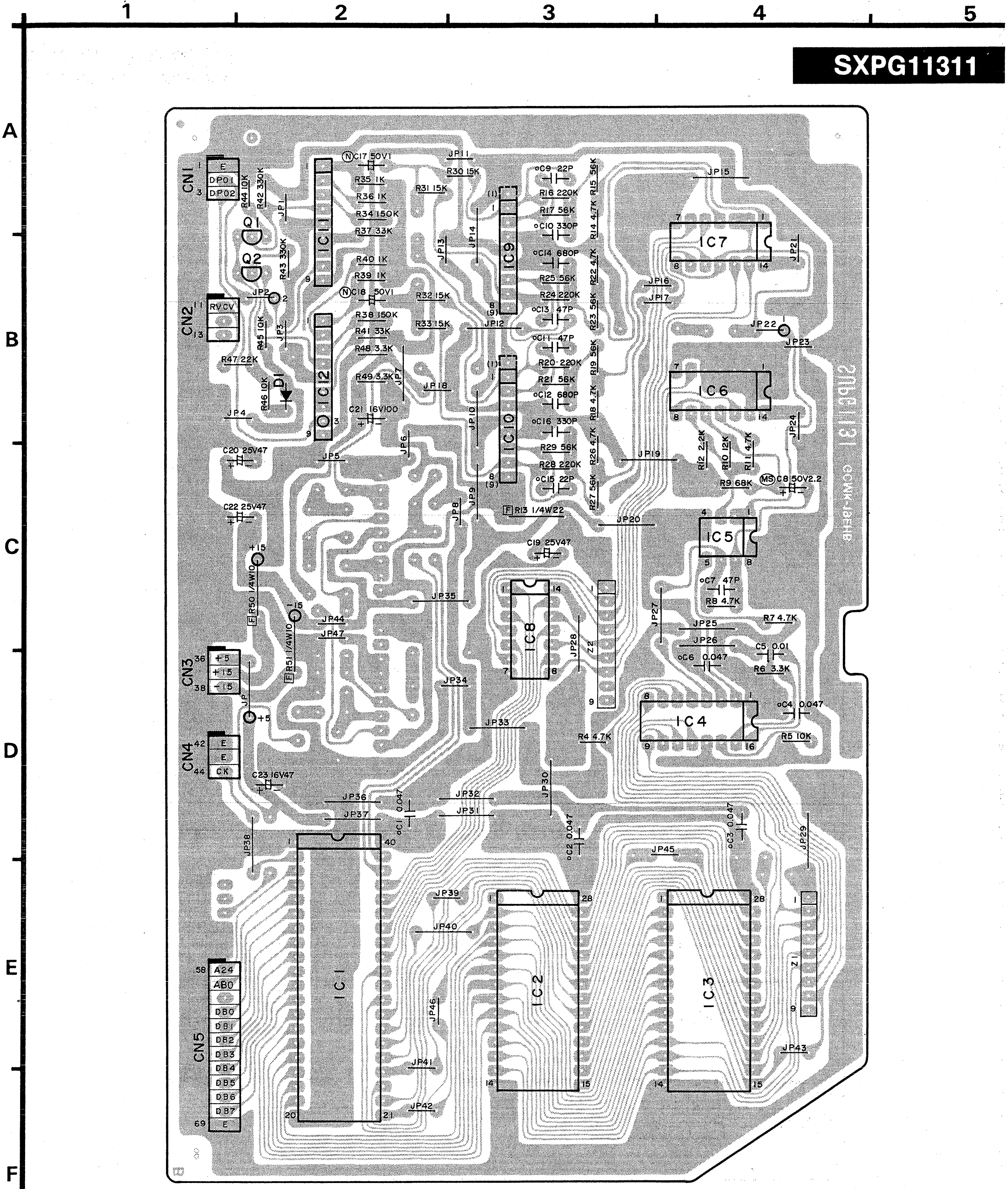
DRUM PERCUSSION CIRCUIT DIAGRAM (DP)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Gate Array
C1 0.047
+5
IC1
VDD
CK
WR
MABO
MDBO
MDB1
MDB2
MDB3
MDB4
MDB5
MDB6
MDB7
CYA
CTY
Vss TEST
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7
AD8
AD9
AD10
AD11
AD12
AD13
AD14
AD15
AD16
CE
LEV1
LEV2
OSE0
OSE1
OSE2
OSE3
JP
SAS
(CK) CK(44)
(A24) A24(58)
(AB0) AB0(59)
(DB0) DB0(61)
(DB1) DB1(62)
(DB2) DB2(63)
(DB3) DB3(64)
(DB4) DB4(65)
(DB5) DB5(66)
(DB6) DB6(67)
(DB7) DB7(68)
Mask Rom
C2 0.047
IC2
Vcc
GND
OE
CE
Mask Rom
C3 0.047
IC3
D-A Converter
+15
IC4
C4 0.047
R5 10K
R6 3.3K
Multi Signal Amp
R8 4.7K
C7 47P
IC5-2
R7 4.7K
C6 0.047
C5 0.01
-15
MS
C8 50V2.2
R9 68K
+7.5
IC6-3
IC6-4
Level Control
R10 12K
Buffer
IC5-1
IC6-1
R11 4.7K
IC6-2
R12 2.2K
+7.5
IC8
Level Shift
5→15
LEV1
LEV2
OSE0
OSE1
OSE2
OSE3
Z2 2.2Kx6
R13 1/4W22
+15
C19 25V47
Z1 4.7Kx7
D0
D1
D2
D3
D4
D5
D6
D7
R4 4.7K
+5
(R52)
(R53)
32μs
4μs
1 2 3 4 5 6 7
Level Control
Output Selector
Variable to 3μsec 2μsec and 1μ sec
+5(36)
+5
C23 16V47
Low Pass Filter
R30 15K
IC9-1
C9 22P
R17 56K
R16 220K
C10 330P
R15 56K
fc 16KHz
R14 4.7K
+7.5
Selector
IC7-1
R32 15K
IC10-1
C11 47P
R21 56K
R20 220K
C12 680P
R19 56K
fc 8KHz
R18 4.7K
+7.5
IC7-2
R31 15K
IC9-2
C13 47P
R25 56K
R24 220K
C14 680P
R23 56K
fc 8KHz
R22 4.7K
+7.5
IC7-3
R33 15K
IC10-2
C15 22P
R29 56K
R28 220K
C16 330P
R27 56K
fc 16KHz
R26 4.7K
+7.5
IC7-4
1
Volume Control
Q1
SAS (RVCV) RVCV(11)
R47 22K
R46 10K
D1
R44 10K
R42 330K
-15
VCA
IC11
R34 150K
+15
N C17 50V1
R37 33K
R36 1K
R35 1K
MIX
(DPO1 DPO1(2)
Right channel
2
Q2
R45 10K
R43 330K
-15
VCA
IC12
R38 150K
+15
N C18 50V1
(DPO2 DPO2(3)
Left channel
3
R41 33K
R40 1K
R39 1K
F R50 1/4W10
+15
R48 3.3K
+15(37)
+7.5
C20 25V47
R49 3.3K
C21 16V100
E (1, 42 43, 69)
C22 25V47
-15(38)
-15
F R51 1/4W10

NOTES:

- IC'S
  - IC1: SVIG65010021
  - IC2: SVIG3256PC35
  - IC3: SVIG3256PC36
  - IC4: SVIGUPC624C
  - IC5: SVIGNJM082D
  - IC6, 7: SVIGUPD4066B
  - IC8: SVIGM53217
  - IC9, 10: SVIGM5218L (SVIGNJM4558S)
  - IC11, 12: SVIGBA6110
- TRANSISTORS
  - Q1, 2: 2SA1015GR
- DIODE
  - D1: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1: EXBP88472MM
  - Z2: EXBP88222MM

DRUM PERCUSSION CIRCUIT BOARD (DP)


1
2
3
4
5
A
B
C
D
E
F
SXPG11311
CN1
E
DP01
DP02
CN2
RV
CV
CN3
+5
+15
-15
CN4
E
E
CK
CN5
A24
AB0
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
Q1
Q2
D1
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
Z1
Z2
C17 50V1
C18 50V1
C21 16V100
C20 25V47
C22 25V47
C19 25V47
C23 16V47
C8 50V2.2
C9 22P
C10 330P
C14 680P
C13 47P
C11 47P
C12 680P
C16 330P
C15 22P
C7 47P
C6 0.047
C5 0.01
C4 0.047
C1 0.047
C2 0.047
C3 0.047
R35 1K
R36 1K
R34 150K
R37 33K
R40 1K
R39 1K
R38 150K
R41 33K
R48 3.3K
R49 3.3K
R30 15K
R31 15K
R32 15K
R33 15K
R44 10K
R42 330K
R43 330K
R45 10K
R47 22K
R46 10K
R16 220K
R17 56K
R25 56K
R24 220K
R20 220K
R21 56K
R29 56K
R28 220K
R15 56K
R14 4.7K
R22 4.7K
R23 56K
R19 56K
R18 4.7K
R26 4.7K
R27 56K
R13 1/4W22
R50 1/4W10
R51 1/4W10
R12 2.2K
R10 12K
R11 4.7K
R9 68K
R8 4.7K
R7 4.7K
R6 3.3K
R5 10K
R4 4.7K
+15
-15
+5
JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8
JP9
JP10
JP11
JP12
JP13
JP14
JP15
JP16
JP17
JP18
JP19
JP20
JP21
JP22
JP23
JP24
JP25
JP26
JP27
JP28
JP29
JP30
JP31
JP32
JP33
JP34
JP35
JP36
JP37
JP38
JP39
JP40
JP41
JP42
JP43
JP44
JP45
JP46
JP47

NOTES:
- IC'S

IC1: SVIG65010021
IC2: SVIG3256PC35
IC3: SVIG3256PC36
IC4: SVIGUPC624C
IC5: SVIGNJM082D
IC6, 7: SVIGUPD4066B
IC8: SVIGM53217
IC9, 10: SVIGM5218L (SVIGNJM4558S)
IC11, 12: SVIGBA6110

- TRANSISTORS

Q1, 2: 2SA1015GR

- DIODE

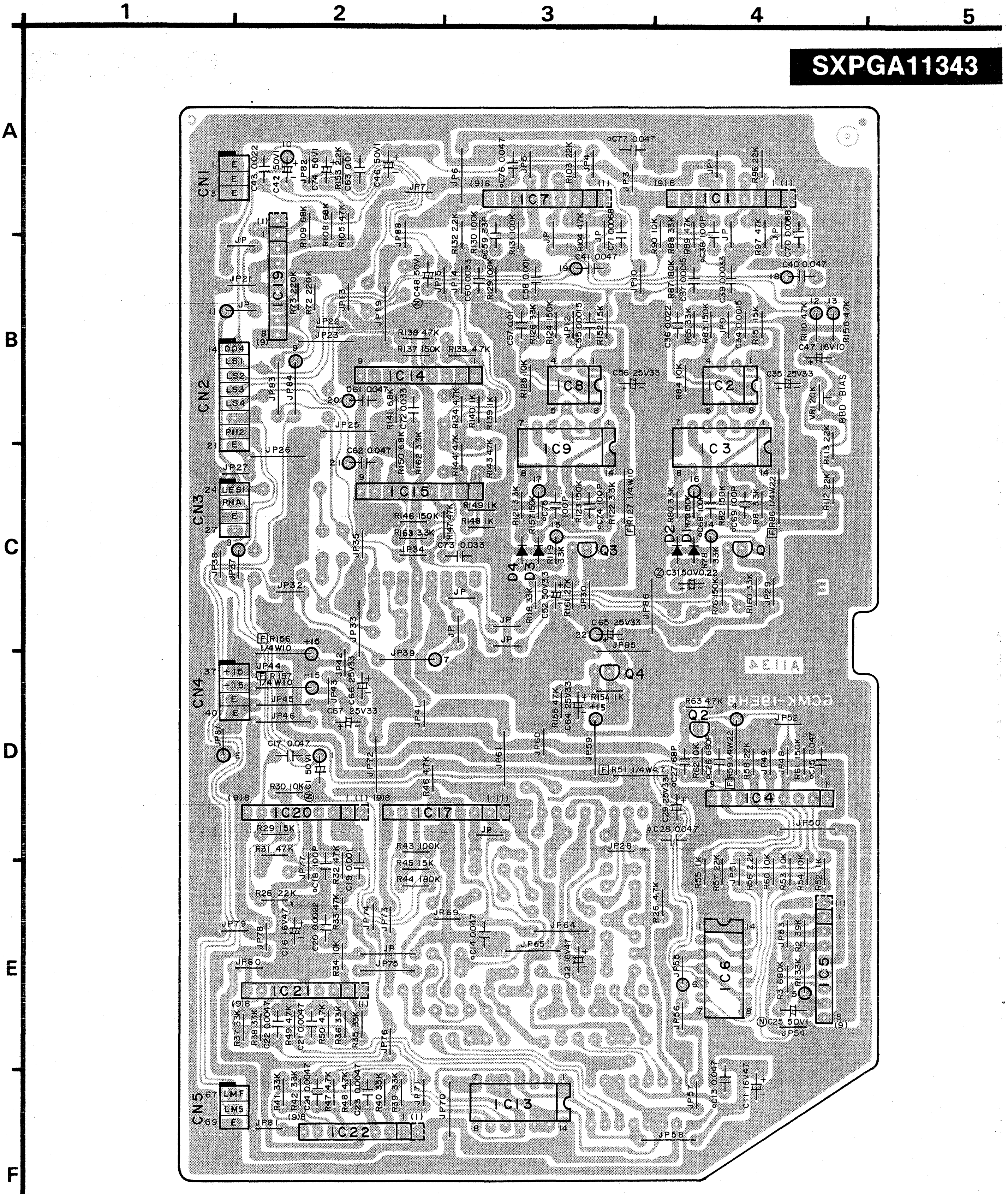
D1: MA165TA5VT

- COMPONENTS COMBINATIONS

Z1: EXBP88472MM
Z2: EXBP88222MM

TREMOLO & PHASER MODULATION CIRCUIT BOARD (LPM)

SXPGA11343


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC13
IC14
IC15
IC17
IC19
IC20
IC21
IC22
Q1
Q2
Q3
Q4
D1
D2
D3
D4
VR1 20K
BBD BIAS
DO4
LS1
LS2
LS3
LS4
PH2
LES1
PHA1
+15
-15
LMF
LMS
E
A113
GCMK-19EH8

NOTES:

- IC'S

IC1, 5, 7, 17, 19∼22: SVIGM5218L (SVIGNJM4558S)

IC2, 8: MN3006

IC3, 6, 9: SVIGMSM4011

IC4: AN6913

IC13: SVIGUPD4066B

IC14, 15: SVIGBA6110

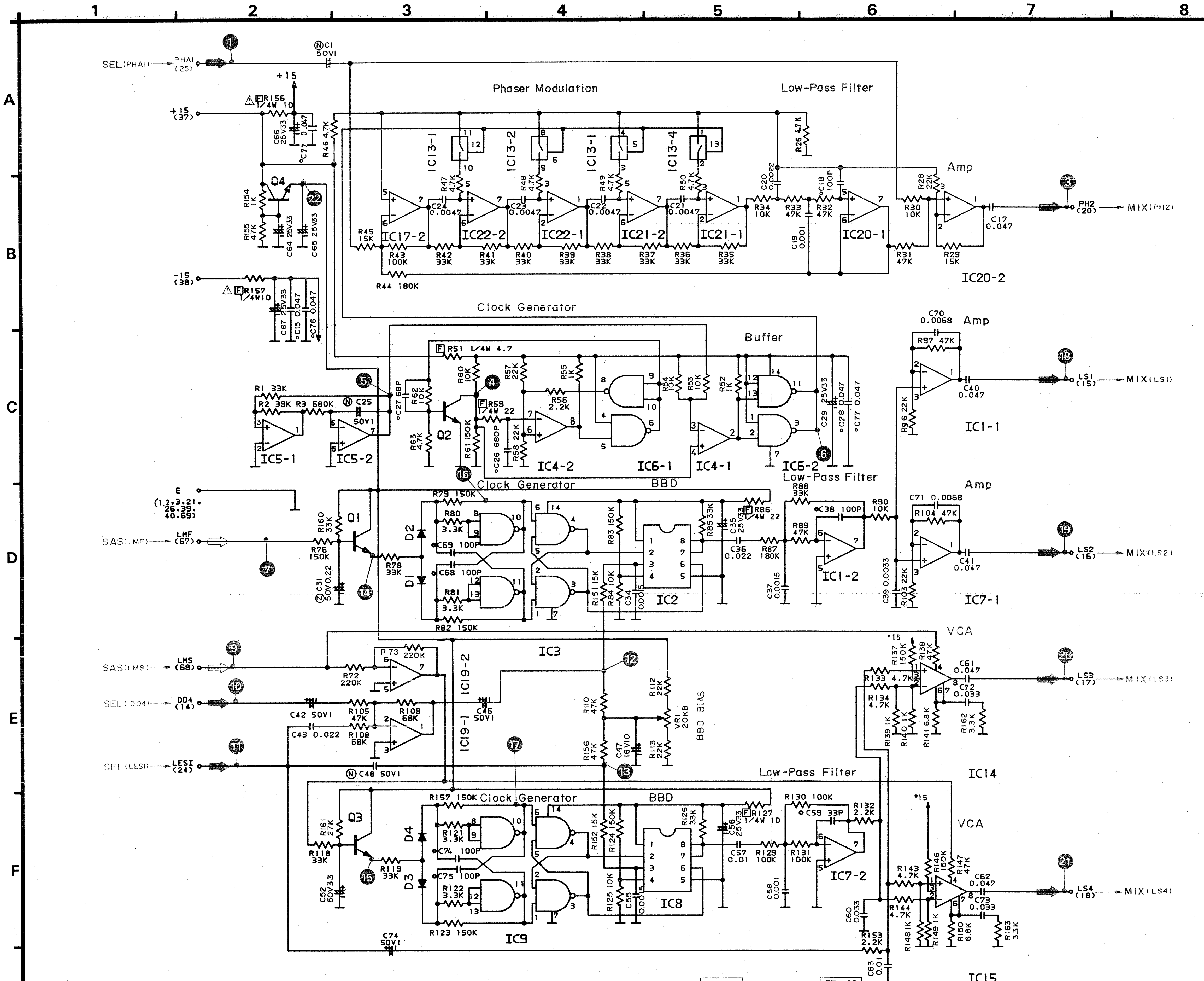
- TRANSISTORS

Q1∼4: 2SC2320LFG

- DIODES

D1∼4: MA165TA5VT

TREMOLO & PHASER MODULATION CIRCUIT DIAGRAM (LPM)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SEL(PHAI) PHAI (25)
C1 50V1
+15
+15 (37)
R156 1/4W 10
C66 25V33
C77 0.047
R46 4.7K
Phaser Modulation
Low-Pass Filter
IC13-1
IC13-2
IC13-1
IC13-4
R26 4.7K
R47 4.7K
R48 4.7K
R49 4.7K
R50 4.7K
C24 0.0047
C23 0.0047
C22 0.0047
C21 0.0047
C20 0.0022
C18 100P
IC17-2
IC22-2
IC22-1
IC21-2
IC21-1
IC20-1
R45 15K
R43 100K
R42 33K
R41 33K
R40 33K
R39 33K
R38 33K
R37 33K
R36 33K
R35 33K
R34 10K
R33 47K
R32 47K
C19 0.001
R44 180K
Amp
R28 22K
R30 10K
R31 47K
R29 15K
C17 0.047
PH2 (20)
MIX(PH2)
IC20-2
Q4
R154 1K
R155 47K
C64 25V33
C65 25V33
-15 (38)
R157 1/4W10
C67 25V33
C15 0.047
C76 0.047
Clock Generator
Buffer
R1 33K
R2 39K
R3 680K
C25 50V1
IC5-1
IC5-2
C27 68P
R62 10K
R63 4.7K
Q2
R51 1/4W 4.7
R60 10K
R59 1/4W 22
R61 150K
C26 680P
R57 22K
R58 22K
R56 2.2K
R55 1K
R54 10K
R53 10K
R52 1K
IC4-2
IC6-1
IC4-1
IC6-2
C29 25V33
C28 0.047
C77 0.047
C70 0.0068
Amp
R97 47K
R96 22K
C40 0.047
LS1 (15)
MIX(LS1)
IC1-1
E (1,2,3,21, 26,39, 40,69)
SAS(LMF) LMF (67)
Q1
R160 33K
R76 150K
C31 50V0.22
R78 33K
Clock Generator
BBD
R79 150K
R80 3.3K
C69 100P
C68 100P
R81 3.3K
R82 150K
D2
D1
R83 150K
R151 15K
R84 10K
C34 0.0015
IC2
R85 33K
C35 25V33
R86 1/4W 22
C36 0.022
R87 180K
Low-Pass Filter
R88 33K
C38 100P
R89 47K
R90 10K
C37 0.0015
IC1-2
Amp
C71 0.0068
R104 47K
C39 0.0033
R103 22K
C41 0.047
LS2 (16)
MIX(LS2)
IC7-1
IC3
SAS(LMS) LMS (68)
R73 220K
R72 220K
IC19-2
SEL(D04) D04 (14)
C42 50V1
R105 47K
R109 68K
C46 50V1
C43 0.022
R108 68K
IC19-1
R110 47K
R112 22K
VR1 20KB
BBD BIAS
C47 16V10
R113 22K
R156 47K
SEL(LES1) LES1 (24)
C48 50V1
VCA
R137 150K
R138 47K
R133 4.7K
R134 4.7K
R139 1K
R140 1K
R141 6.8K
C61 0.047
C72 0.033
R162 3.3K
LS3 (17)
MIX(LS3)
IC14
Low-Pass Filter
Q3
R161 27K
R118 33K
C52 50V33
R119 33K
R157 150K
Clock Generator
BBD
R121 3.3K
C74 100P
C75 100P
R122 3.3K
R123 150K
D4
D3
IC9
R152 15K
R124 150K
R125 10K
C55 0.0015
IC8
R126 33K
C56 25V33
R127 1/4W 10
C57 0.01
R129 100K
R130 100K
C59 33P
R132 2.2K
R131 100K
C58 0.001
IC7-2
C60 0.033
R153 2.2K
C63 0.01
C74 50V1
VCA
R143 4.7K
R146 150K
R147 47K
R144 4.7K
R148 1K
R149 1K
R150 6.8K
C62 0.047
C73 0.033
R163 3.3K
LS4 (18)
MIX(LS4)
IC15

NOTES:

- IC'S

IC1, 5, 7, 17, 19~22:	SVIGM5218L (SVIGNJM4558S)
IC2, 8:	MN3006
IC3, 6, 9:	SVIGMSM4011
IC4:	AN6913
IC13:	SVIGUPD4066B
IC14, 15:	SVIGBA6110

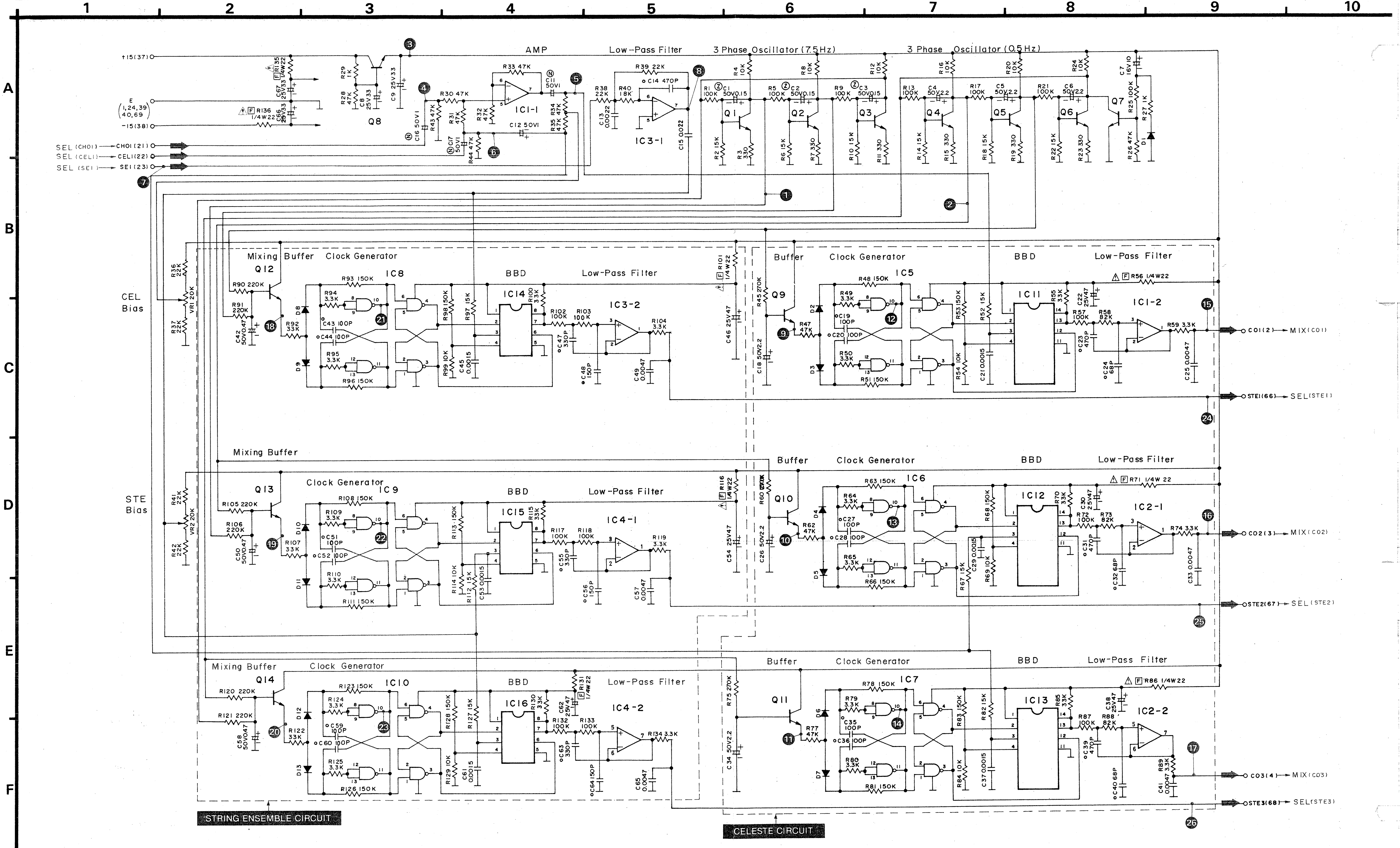
- TRANSISTORS

Q1~4:	2SC2320LFG

- DIODES

D1~4:	MA165TA5VT

CELESTE & STRING ENSEMBLE CIRCUIT DIAGRAM (CSM)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
+15(37)
E (1,24,39 40,69)
-15(38)
SEL (CHO1) — CHO1(21)
SEL (CEL1) — CEL1(22)
SEL (SE1) — SE1(23)
Q8
AMP
IC1-1
Low-Pass Filter
IC3-1
3 Phase Oscillator (7.5Hz)
Q1
Q2
Q3
3 Phase Oscillator (0.5Hz)
Q4
Q5
Q6
Q7
CEL Bias
VR1 20K
Mixing Buffer
Q12
Clock Generator
IC8
BBD
IC14
Low-Pass Filter
IC3-2
Buffer
Q9
Clock Generator
IC5
BBD
IC11
Low-Pass Filter
IC1-2
CO1(2) — MIX(CO1)
STE1(66) — SEL(STE1)
Mixing Buffer
STE Bias
VR2 20K
Q13
Clock Generator
IC9
BBD
IC15
Low-Pass Filter
IC4-1
Buffer
Q10
Clock Generator
IC6
BBD
IC12
Low-Pass Filter
IC2-1
CO2(3) — MIX(CO2)
STE2(67) — SEL(STE2)
Mixing Buffer
Q14
Clock Generator
IC10
BBD
IC16
Low-Pass Filter
IC4-2
Buffer
Q11
Clock Generator
IC7
BBD
IC13
Low-Pass Filter
IC2-2
CO3(4) — MIX(CO3)
STE3(68) — SEL(STE3)
STRING ENSEMBLE CIRCUIT
CELESTE CIRCUIT
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔
㉕
㉖

NOTES:

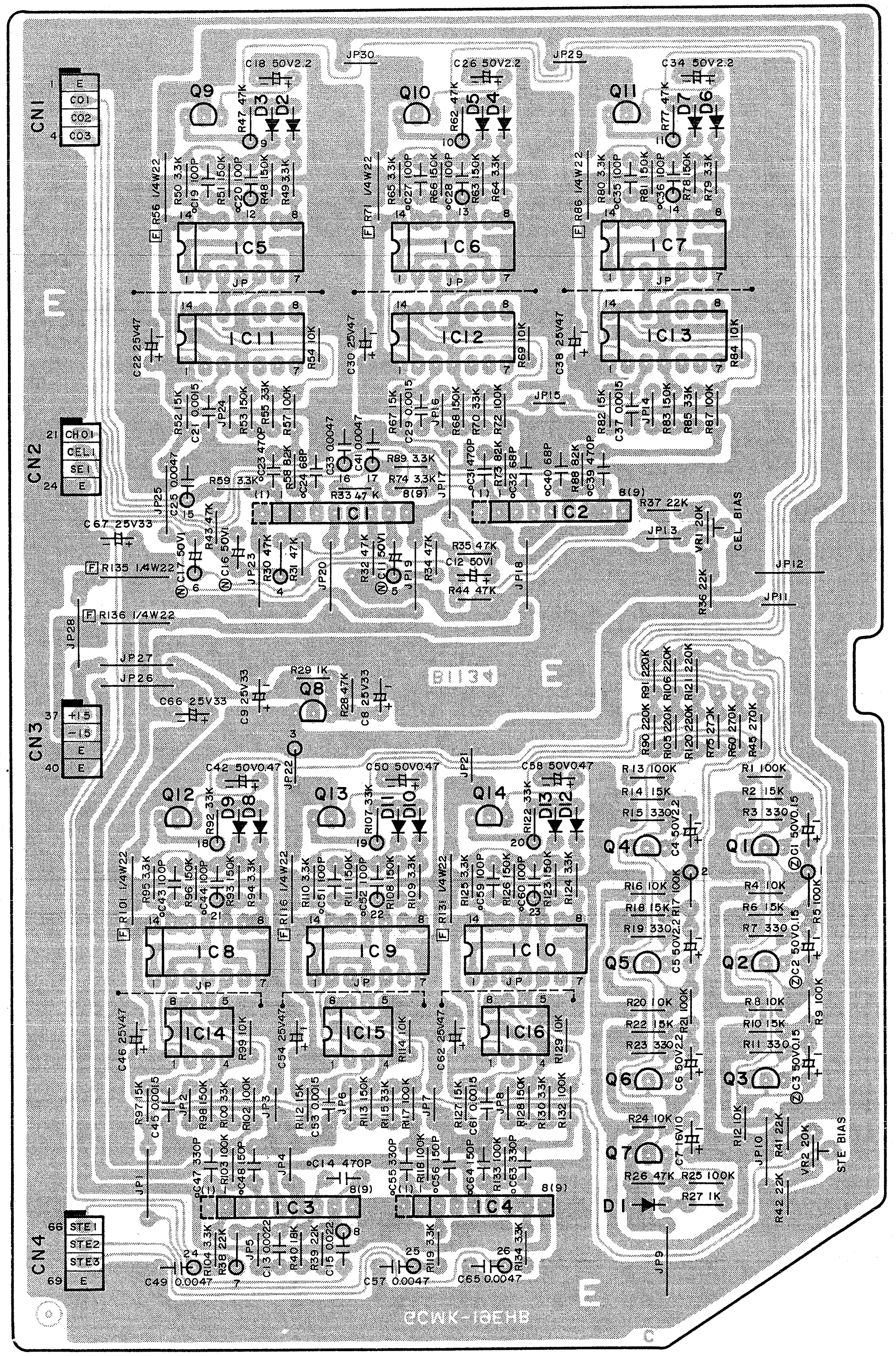
- IC'S

IC1~4:	SVIGM5218L (SVIGNJM4558S)	IC11~13:	MN3004
IC5~10:	SVIGMSM4011	IC14~16:	MN3006

- TRANSISTORS
  Q1~14: 2SC2320LFG
- DIODES
  D1~13: MA165TA5VT

CELESTE & STRING ENSEMBLE CIRCUIT BOARD (CSM)

SXPGB11342


1
2
3
4
5
A
B
C
D
E
F
CN1
E
CO1
CO2
CO3
CN2
CH01
CEL1
SE1
E
CN3
+15
-15
E
E
CN4
STE1
STE2
STE3
E
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
VR1 20K
CEL BIAS
VR2 20K
STE BIAS
JP
JP30
JP29
R29 1K
R37 22K
R36 22K
R41 22K
R42 22K
R26 47K
R25 100K
R27 1K
C18 50V2.2
C26 50V2.2
C34 50V2.2
C42 50V0.47
C50 50V0.47
C58 50V0.47
C49 0.0047
C57 0.0047
C65 0.0047
C67 25V33
C66 25V33
C9 25V33
C8 25V33
R135 1/4W22
R136 1/4W22
B1134
2CWK-19EHB
E

NOTES:

- IC'S

IC1~4:	SVIGM5218L (SVIGNJM4558S)
IC5~10:	SVIGMSM4011
IC11~13:	MN3004
IC14~16:	MN3006

- TRANSISTORS

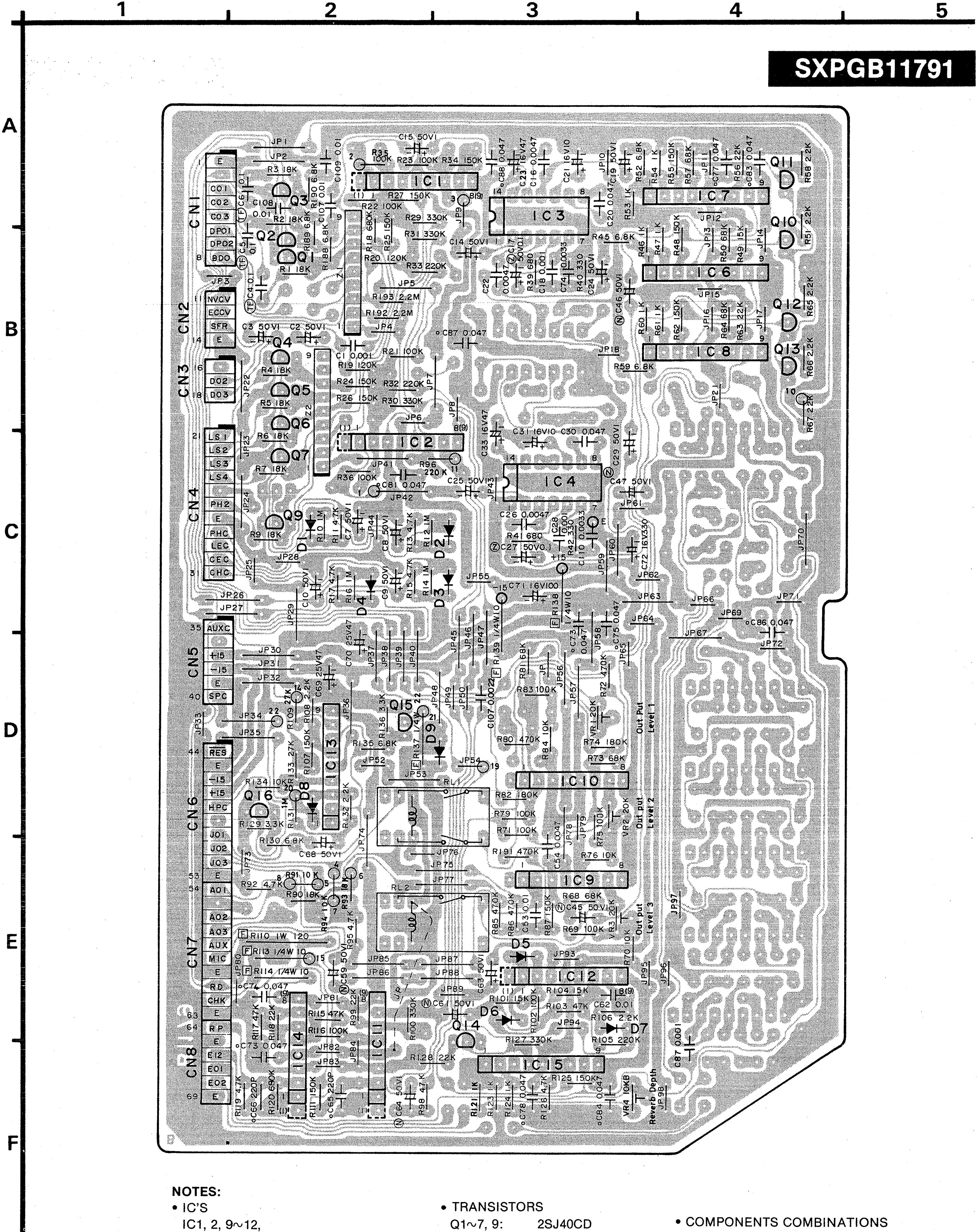
Q1~14:	2SC2320LFG

- DIODES

D1~13:	MA165TA5VT

MIXING CIRCUIT BOARD (MIX)

SXPGB11791


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
IC1
IC2
IC3
IC4
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
D1
D2
D3
D4
D5
D6
D7
D8
D9
RL1
RL2
Out Put Level 1
Out put Level 2
Out put Level 3
Reverb Depth
VR1 20K
VR2 20K
VR3 20K
VR4 10KB

NOTES:

- IC'S

IC1, 2, 9～12, 14:	SVIGM5218L (SVIGNJM4558S)
IC3, 4:	SVIGLM1894N
IC6～8, 15:	SVIGBA6110
IC13:	AN6913

- TRANSISTORS

Q1～7, 9:	2SJ40CD
Q10～16:	2SA1015GR

- DIODES

D1～9:	MA165TA5VT

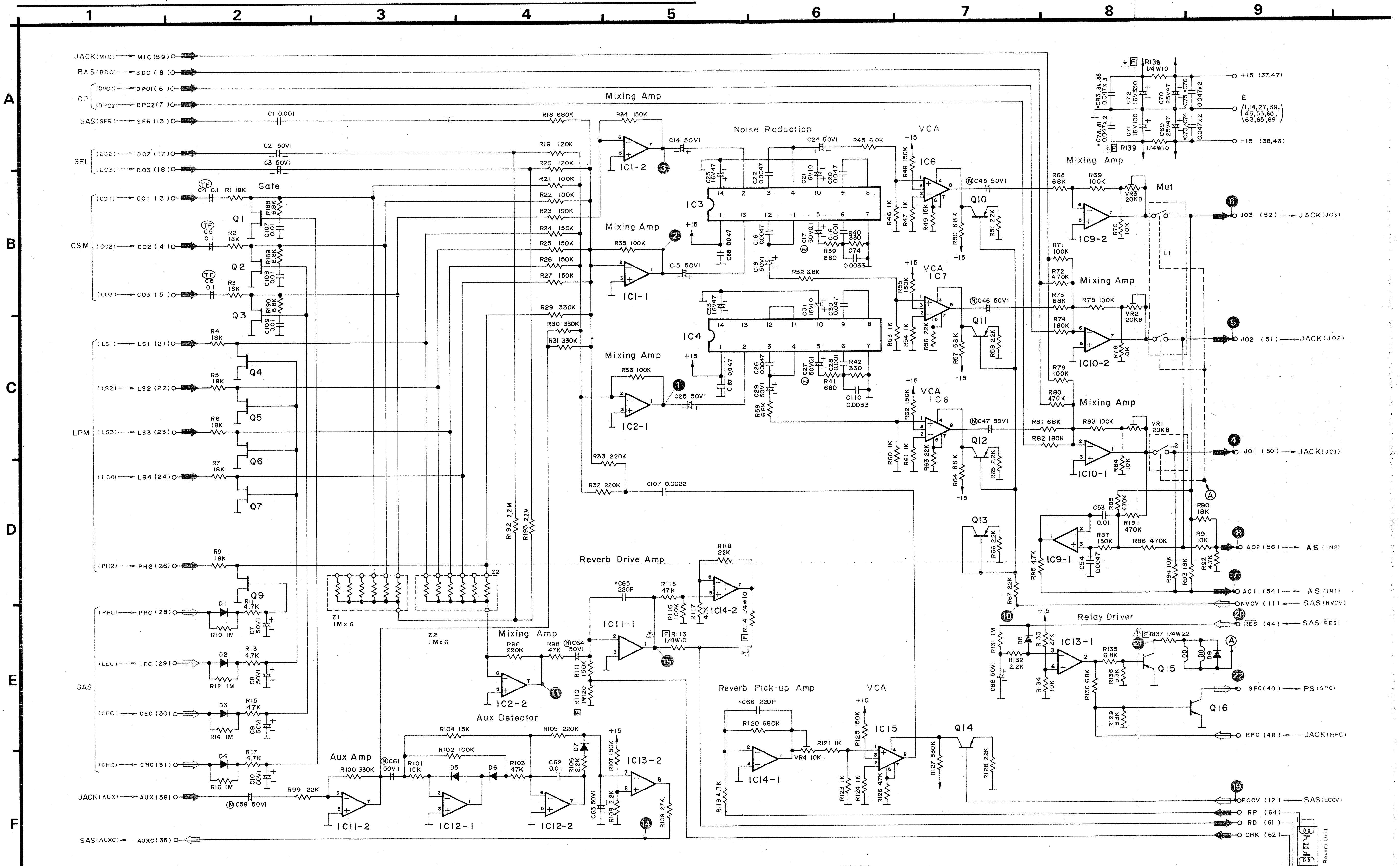
- COMPONENTS COMBINATIONS

Z1, 2:	EXBP88105MM

- RELAY

L1, 2:	SSYGMR5212S

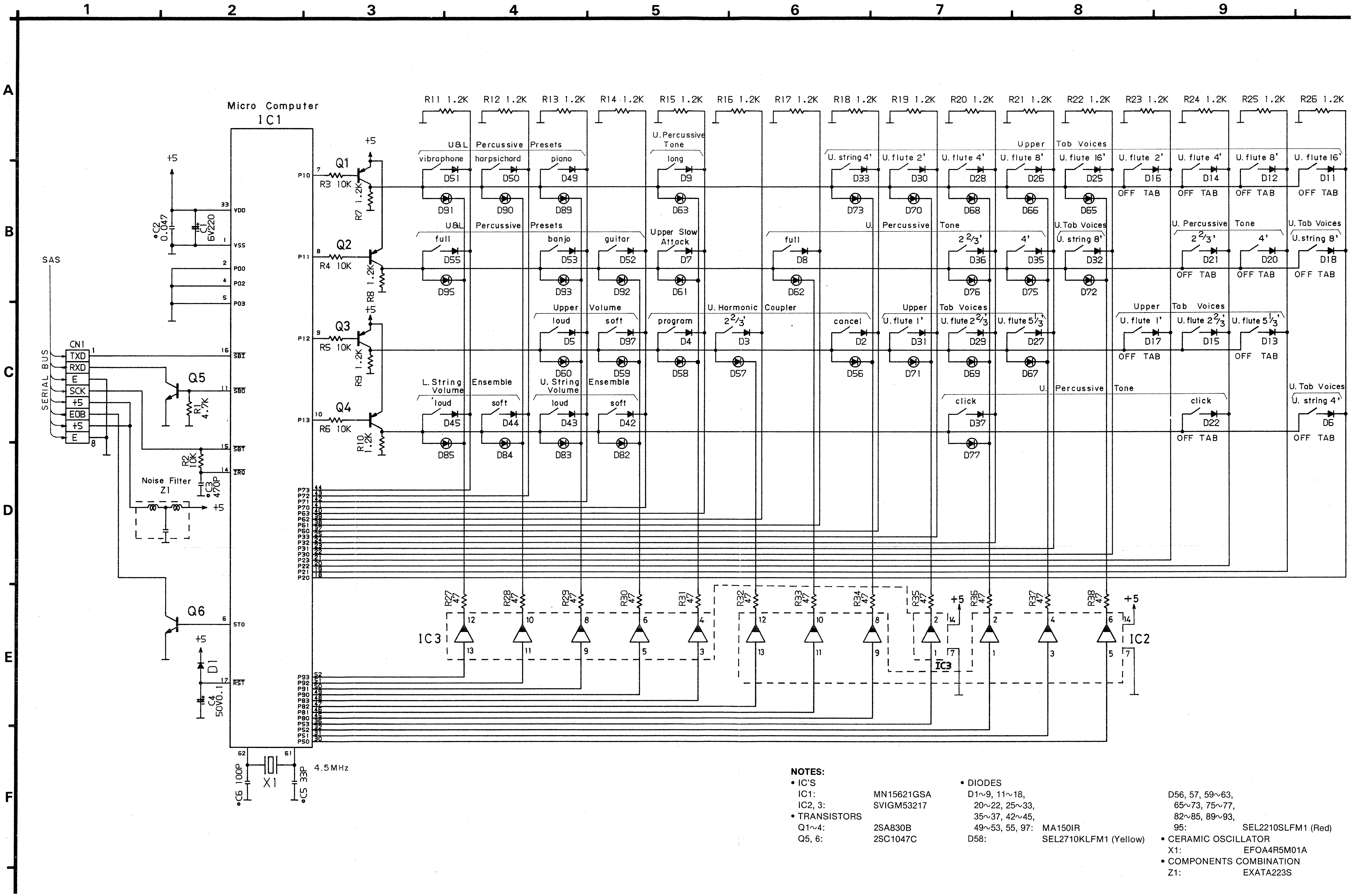
MIXING CIRCUIT DIAGRAM (MIX)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
JACK(MIC) MIC (59)
BAS(BDO) BDO (8)
DP (DPO1) DPO1 (6)
(DPO2) DPO2 (7)
SAS(SFR) SFR (13)
SEL (DO2) DO2 (17)
(DO3) DO3 (18)
CSM (CO1) CO1 (3)
(CO2) CO2 (4)
(CO3) CO3 (5)
LPM (LS1) LS1 (21)
(LS2) LS2 (22)
(LS3) LS3 (23)
(LS4) LS4 (24)
(PH2) PH2 (26)
SAS (PHC) PHC (28)
(LEC) LEC (29)
(CEC) CEC (30)
(CHC) CHC (31)
JACK(AUX) AUX (58)
SAS(AUXC) AUXC (35)
Gate
Mixing Amp
Noise Reduction
VCA
Reverb Drive Amp
Reverb Pick-up Amp
Aux Amp
Aux Detector
Relay Driver
Mut
IC1-1
IC1-2
IC2-1
IC2-2
IC3
IC4
IC6
IC7
IC8
IC9-1
IC9-2
IC10-1
IC10-2
IC11-1
IC11-2
IC12-1
IC12-2
IC13-1
IC13-2
IC14-1
IC14-2
IC15
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Z1 1M x 6
Z2 1M x 6
L1
L2
VR1 20KB
VR2 20KB
VR3 20KB
VR4 10K
+15 (37,47)
E (1,14,27,39, 45,53,60, 63,65,69)
-15 (38,46)
R138 1/4W10
R139 1/4W10
JO3 (52) JACK(JO3)
JO2 (51) JACK(JO2)
JO1 (50) JACK(JO1)
AO2 (56) AS (IN2)
AO1 (54) AS (IN1)
NVCV (11) SAS(NVCV)
RES (44) SAS(RES)
SPC (40) PS(SPC)
HPC (48) JACK(HPC)
ECCV (12) SAS(ECCV)
RP (64)
RD (61)
CHK (62)
Reverb Unit
C1 0.001
C2 50V1
C3 50V1
C4 0.1
C5 0.1
C6 0.1
R1 18K
R2 18K
R3 18K
R4 18K
R5 18K
R6 18K
R7 18K
R9 18K
R18 680K
R19 120K
R20 120K
R21 100K
R22 100K
R23 100K
R24 150K
R25 150K
R26 150K
R27 150K
R29 330K
R30 330K
R31 330K
R32 220K
R33 220K
R34 150K
R35 100K
R36 100K
R45 6.8K
R52 6.8K
C14 50V1
C15 50V1
C25 50V1
C24 50V1
C107 0.0022
C45 50V1
C46 50V1
C47 50V1
R68 68K
R69 100K
R71 100K
R72 470K
R73 68K
R74 180K
R75 100K
R79 100K
R80 470K
R81 68K
R82 180K
R83 100K
R86 470K
R87 150K
R90 18K
R91 10K
R92 4.7K
R93 18K
R94 10K
R95 4.7K
C53 0.01
C54 0.0047
R96 220K
R98 47K
C64 50V1
R99 22K
C59 50V1
R100 330K
C61 50V1
R101 15K
R102 100K
R103 47K
R104 15K
R105 220K
R106 22K
R107 150K
R108 2.2K
R109 27K
C62 0.01
C63 50V1
D1
D2
D3
D4
D5
D6
D7
D8
D9
R10 1M
R11 4.7K
R12 1M
R13 4.7K
R14 1M
R15 4.7K
R16 1M
R17 4.7K
R110 1W120
R111 150K
R113 1/4W10
R114 1/4W10
R115 47K
R116 100K
R117 47K
R118 22K
C65 220P
C66 220P
R119 4.7K
R120 680K
R121 1K
R123 1K
R124 1K
R125 150K
R126 47K
R127 330K
R128 22K
R129 3.3K
R130 6.8K
R131 1M
R132 2.2K
R133 27K
R134 10K
R135 6.8K
R136 3.3K
R137 1/4W22
R192 22M
R193 22M
C68 50V1
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(10)
(11)
(14)
(15)
(19)
(20)
(21)
(22)

NOTES:

- IC'S
  - IC1, 2, 9~12, 14: SVIGM5218L (SVIGNJM4558S)
  - IC3, 4: SVIGLM1894N
  - IC13: AN6913
  - IC6~8, 15: SVIGBA6110
- TRANSISTORS
  - Q1~7, 9: 2SJ40CD
  - Q10~16: 2SA1015GR
- DIODES
  - D1~9: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1, 2: EXBP88105MM
- RELAY
  - L1, 2: SSYGMR5212S

U. CONTROL PANEL LEFT CIRCUIT DIAGRAM (CPL)



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
+5
C2 0.047
C1 6V220
VDD
VSS
P00
P02
P03
SAS
SERIAL BUS
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
SBI
SBO
SBT
IRQ
Q5
R1 4.7K
R2 10K
C3 470P
Noise Filter
Z1
Q6
STO
D1
C4 50V0.1
RST
Q1
Q2
Q3
Q4
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
P10
P11
P12
P13
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
U&L Percussive Presets
vibraphone
harpsichord
piano
U. Percussive Tone
long
Upper Tab Voices
U. string 4'
U. flute 2'
U. flute 4'
U. flute 8'
U. flute 16'
OFF TAB
full
banjo
guitar
Upper Slow Attack
U. Percussive Tone
2 2/3'
4'
U. Tab Voices
U. string 8'
Upper Volume
loud
soft
program
U. Harmonic Coupler
cancel
U. flute 1'
U. flute 2 2/3'
U. flute 5 1/3'
L. String Volume
Ensemble
U. String Volume
click
U. string 4'
P73
P72
P71
P70
P63
P62
P61
P60
P33
P32
P31
P30
P23
P22
P21
P20
P93
P92
P91
P90
P83
P82
P81
P80
P53
P52
P51
P50
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
IC3
IC2
C6 100P
X1
C5 33P
4.5MHz

NOTES:

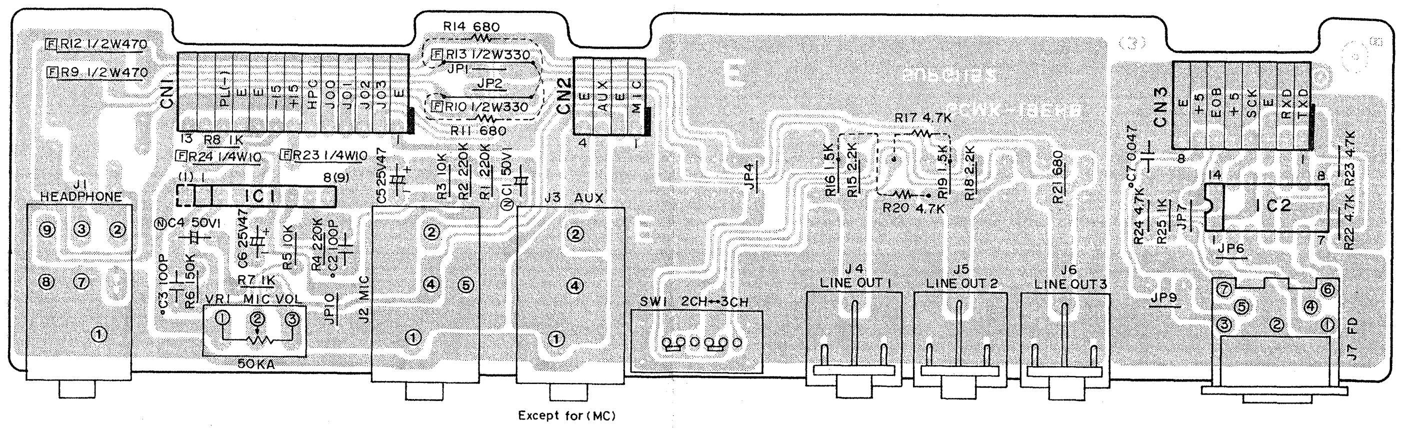
- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~9, 11~18, 20~22, 25~33, 35~37, 42~45, 49~53, 55, 97: MA150IR
  - D58: SEL2710KLFM1 (Yellow)
  - D56, 57, 59~63, 65~73, 75~77, 82~85, 89~93, 95: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S

U. CONTROL PANEL LEFT CIRCUIT BOARD (CPL)

JACK CIRCUIT BOARD (JACK)

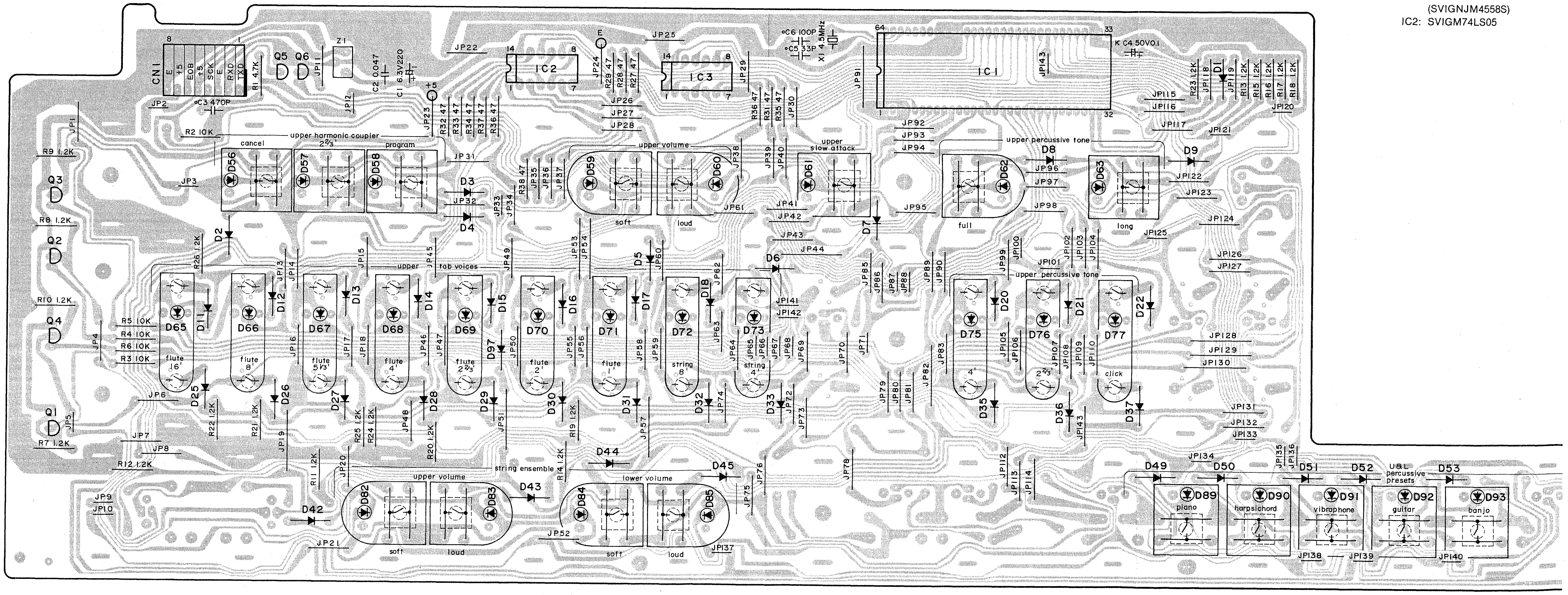
Products for [MC] only.

SXPG11522 **SXPG11524**


CN1
CN2
CN3
IC1
IC2
J1 HEADPHONE
J2 MIC
J3 AUX
J4 LINE OUT 1
J5 LINE OUT 2
J6 LINE OUT3
J7 FD
VR1 MIC VOL
50KA
SW1 2CH↔3CH
Except for (MC)

NOTES:
- IC'S
  - IC1: SVIGM5218L (SVIGNJM4558S)
  - IC2: SVIGM74LS05

SXPG11422


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
CN1
IC1
IC2
IC3
Z1
X1 4.5MHz
upper harmonic coupler
cancel
2⅔
program
upper volume
soft
loud
upper slow attack
upper percussive tone
full
long
upper tab voices
flute 16'
flute 8'
flute 5⅓'
flute 4'
flute 2⅔'
flute 2'
flute 1'
string 8'
string 4'
4'
2⅔'
click
string ensemble
lower volume
U&L percussive presets
piano
harpsichord
vibraphone
guitar
banjo

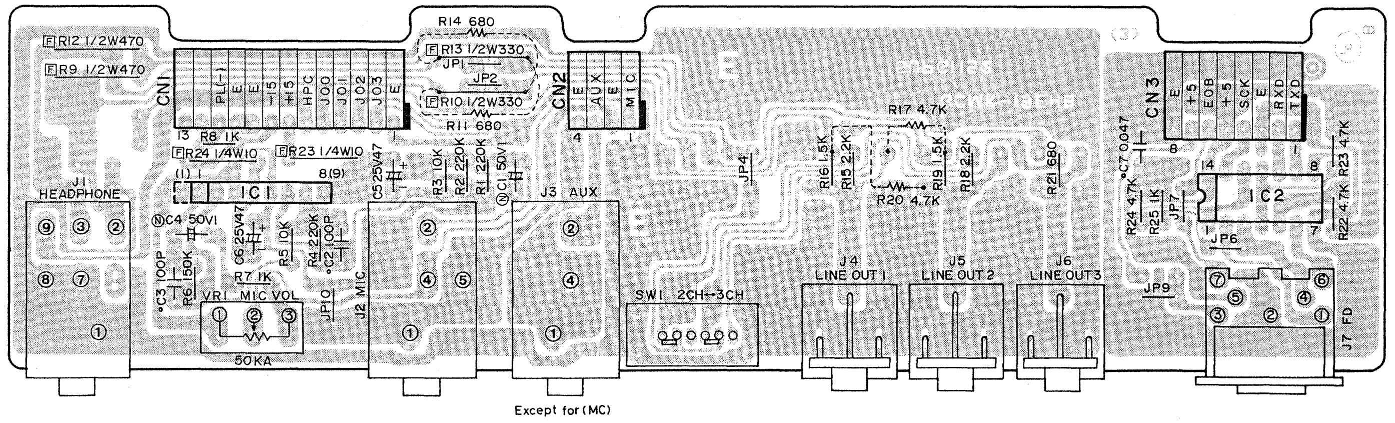
NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~9, 11~18, 20~22, 25~33, 35~37, 42~45, 49~53, 55, 97: MA150IR
  - D58: SEL2710KLFM1 (Yellow)
  - D56, 57, 59~63, 65~73, 75~77, 82~85, 89~93, 95: SEL2210SLFM1 (Red)

JACK CIRCUIT BOARD (JACK)

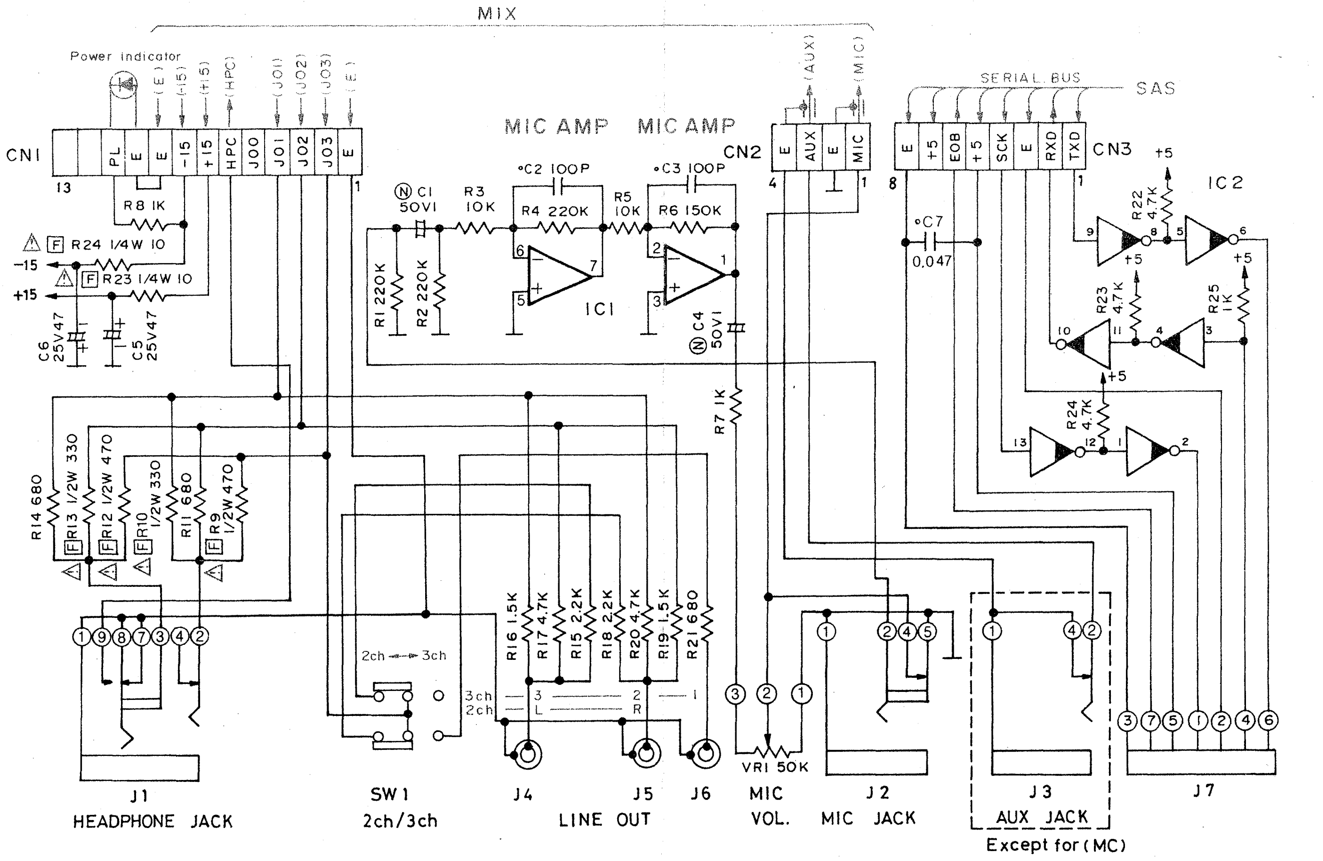
JACK CIRCUIT DIAGRAM (JACK)

Products for [MC] only.

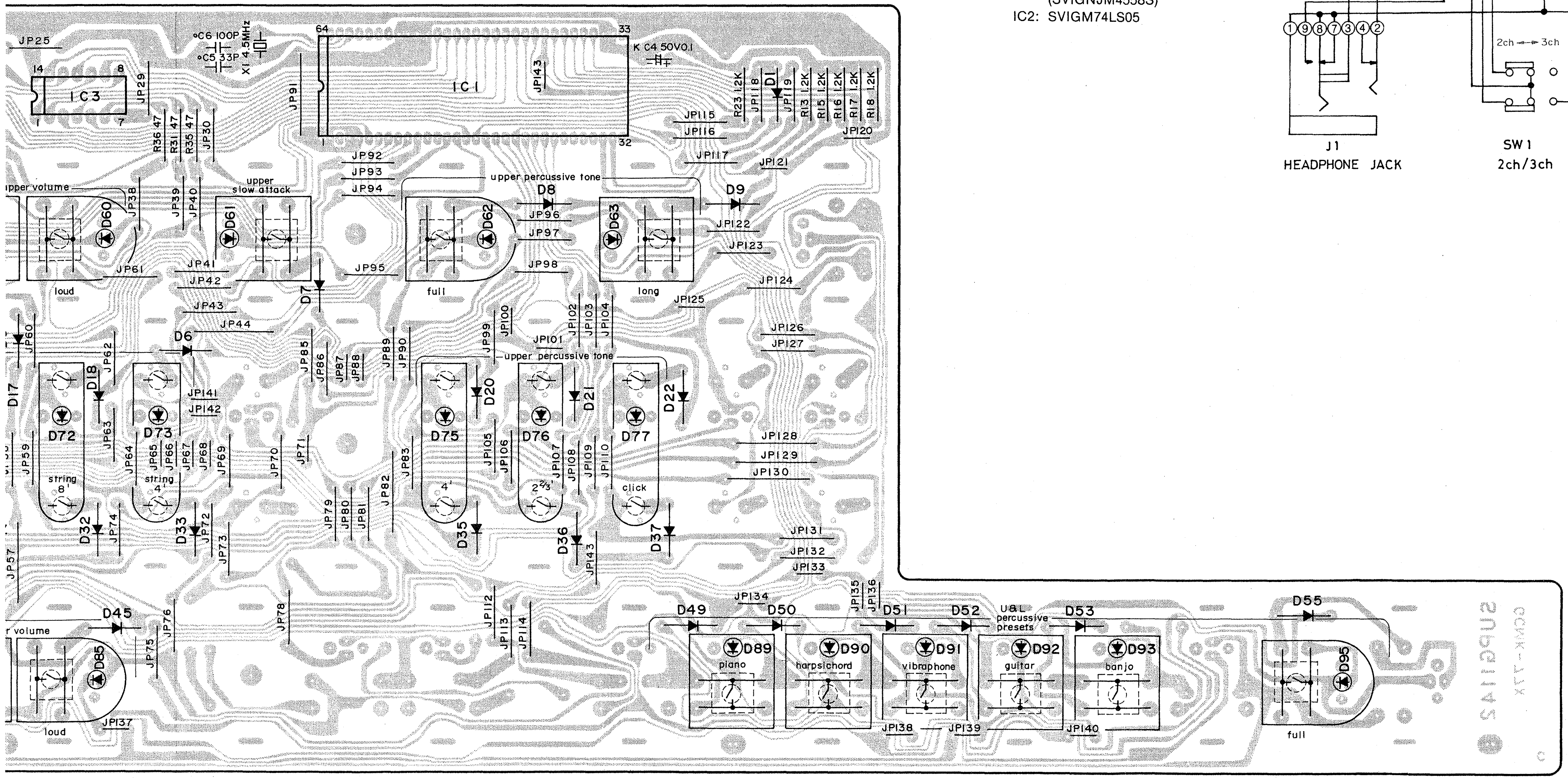
SXPG11522 **SXPG11524**


R14 680
F R12 1/2W470
F R9 1/2W470
F R13 1/2W330
F R10 1/2W330
JP1
JP2
R11 680
CN1
PL(+) E E −15 +15 HPC J00 J01 J02 J03 E
CN2
E AUX E MIC
R8 1K
F R24 1/4W10
F R23 1/4W10
IC1
J1 HEADPHONE
C4 50V1
C6 25V47
C5 25V47
R5 10K
R4 220K
C2 100P
C3 100P
R6 150K
R7 1K
VR1 MIC VOL
50KA
JP10
J2 MIC
R3 10K
R2 220K
R1 220K
C1 50V1
J3 AUX
JP4
SW1 2CH↔3CH
R17 4.7K
R16 1.5K
R15 2.2K
R19 1.5K
R18 2.2K
R20 4.7K
R21 680
J4 LINE OUT1
J5 LINE OUT2
J6 LINE OUT3
CN3
E +5 EOB +5 SCK E RXD TXD
C7 0.047
R24 4.7K
R25 1K
JP7
IC2
JP6
R22 4.7K
R23 4.7K
JP9
J7 FD
Except for (MC)

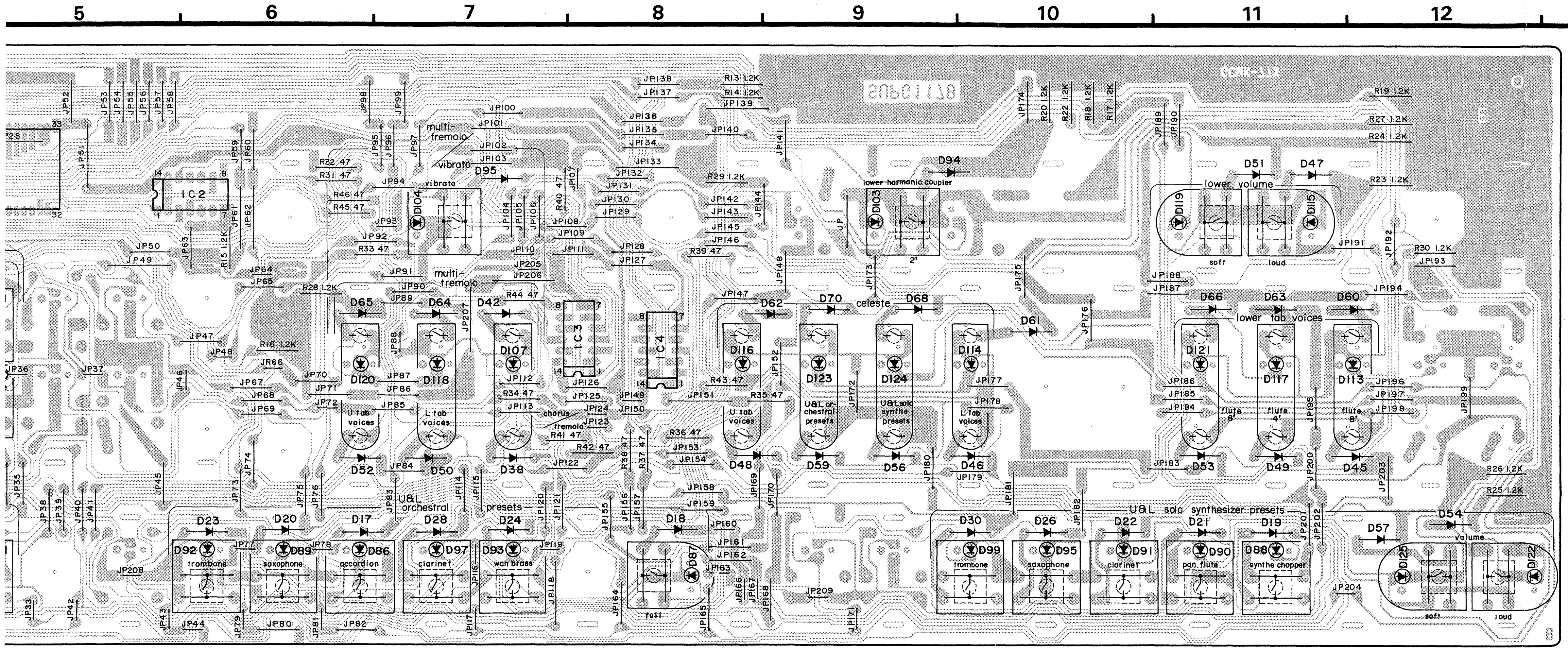
NOTES:
- IC'S
  - IC1: SVIGM5218L (SVIGNJM4558S)
  - IC2: SVIGM74LS05


MIX
Power indicator
CN1
PL E E −15 +15 HPC J00 J01 J02 J03 E
R8 1K
F R24 1/4W 10
F R23 1/4W 10
−15
+15
C6 25V47
C5 25V47
MIC AMP
MIC AMP
C1 50V1
R3 10K
C2 100P
R4 220K
R5 10K
C3 100P
R6 150K
R1 220K
R2 220K
IC1
C4 50V1
R7 1K
CN2
E AUX E MIC
SERIAL BUS
SAS
E +5 EOB +5 SCK E RXD TXD
CN3
C7 0.047
IC2
R22 4.7K
R23 4.7K
R24 4.7K
R25 1K
+5
R14 680
F R13 1/2W 330
F R12 1/2W 470
F R10 1/2W 330
R11 680
F R9 1/2W 470
2ch ↔ 3ch
R16 1.5K
R17 4.7K
R15 2.2K
R18 2.2K
R20 4.7K
R19 1.5K
R21 680
VR1 50K
J1 HEADPHONE JACK
SW1 2ch/3ch
J4
J5 LINE OUT
J6
MIC VOL.
J2 MIC JACK
J3 AUX JACK
Except for (MC)
J7

NOTES:
- IC'S
  - IC1: SVIGM5218L (SVIGNJM4558S)
  - IC2: SVIGM74LS05


IC1
IC3
X1 4.5MHz
C6 100P
C5 33P
C4 50V0.1
upper volume
upper slow attack
upper percussive tone
full
long
loud
string 8'
string 4'
4'
2 2/3'
click
piano
harpsichord
vibraphone
guitar
banjo
U&L percussive presets
r volume
loud
full
D1 D6 D7 D8 D9 D17 D18 D20 D21 D22 D32 D33 D35 D36 D37 D45 D49 D50 D51 D52 D53 D55
D60 D61 D62 D63 D72 D73 D75 D76 D77 D85 D89 D90 D91 D92 D93 D95
SUPG11542

NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~9, 11~18, 20~22, 25~33, 35~37, 42~45, 49~53, 55, 97: MA150IR
  - D58: SEL2710KLFM1 (Yellow)
  - D56, 57, 59~63, 65~73, 75~77, 82~85, 89~93, 95: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S


5
6
7
8
9
10
11
12
13
14
IC2
IC3
IC4
multi-tremolo
vibrato
D95
D94
lower harmonic coupler
lower volume
D51
D47
soft
loud
D65
D64
D42
D62
D70
celeste
D68
D61
D66
D63
D60
lower tab voices
D120
D118
D107
D116
D123
D124
D114
D121
D117
D113
U tab voices
L tab voices
chorus
tremolo
U&L orchestral presets
U&L solo synthe presets
flute 8'
flute 4'
D52
D50
D38
D48
D59
D56
D46
D53
D49
D45
U&L orchestral presets
D23
D20
D17
D28
D24
D18
D30
D26
D22
D21
D19
D57
D54
volume
D92
D89
D86
D97
D93
D87
D99
D95
D91
D90
D88
D125
D122
trombone
saxophone
accordion
clarinet
wah brass
full
trombone
saxophone
clarinet
pan flute
synthe chopper
soft
loud
U&L solo synthesizer presets

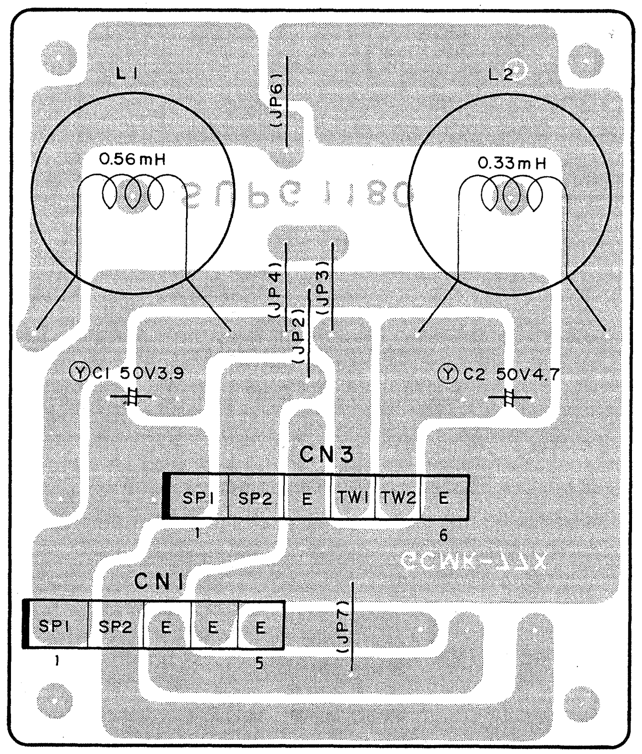
SXPG11781

NOTES:

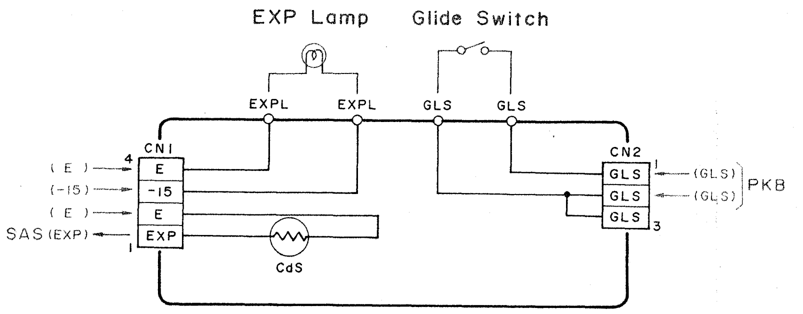
• IC'S	
IC1:	MN15621GSA
IC2~4:	SVIGM53217
• TRANSISTORS	
Q1~4:	2SA830B
Q5, 6:	2SC1047C
• DIODES	
D1, 2, 4~6, 9~13, 15, 17~24, 26, 28, 30, 32~35, 37, 38, 40, 42~54, 56, 57, 59~66, 68, 70:	MA150IRTA5
D101, 102, 106, 109, 112:	SEL2710KLFM1 (Yellow)
D71, 73~75, 78~82, 84, 86~93, 95, 97, 99, 103, 104, 107, 111, 113~122, 124, 125, 127:	SEL2210SLFM1 (Red)
• CERAMIC OSCILLATOR	
X1:	EFOA4R5M01A
• COMPONENTS COMBINATION	
Z1:	EXATA223S

NETWORK CIRCUIT BOARD (NW)

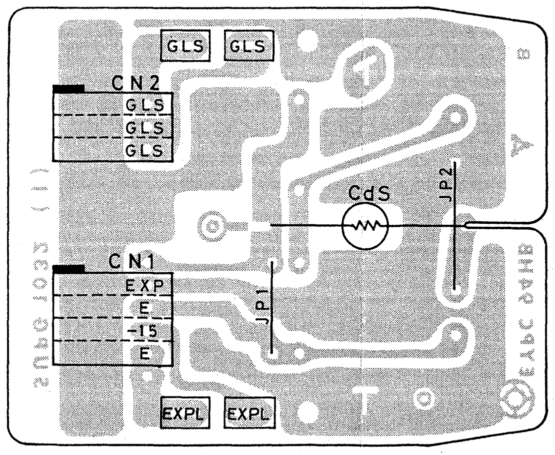
SXPG11802


L1
L2
0.56mH
0.33mH
(JP6)
(JP4)
(JP2)
(JP3)
C1 50V3.9
C2 50V4.7
CN3
SP1
SP2
E
TW1
TW2
E
1
6
CN1
SP1
SP2
E
E
E
1
5
(JP7)

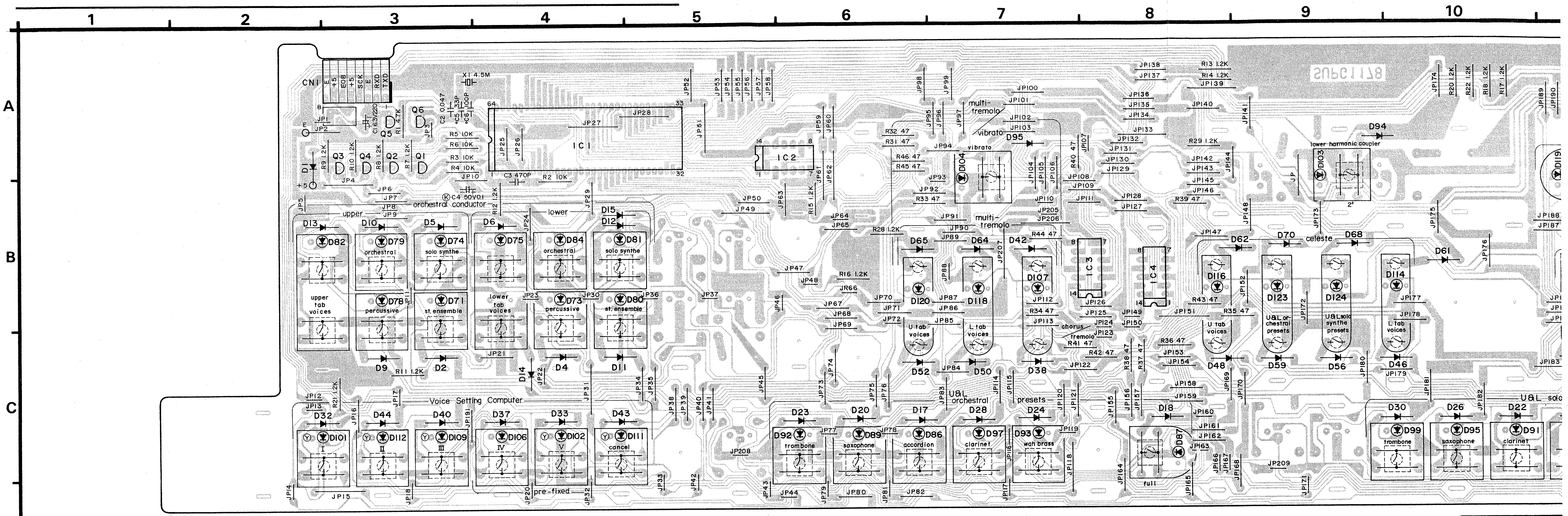
EXPRESSION CIRCUIT (EXP)


EXP Lamp
Glide Switch
EXPL
EXPL
GLS
GLS
CN1
4
(E)
(-15)
(E)
SAS (EXP)
E
-15
E
EXP
1
CdS
CN2
1
GLS
GLS
GLS
3
(GLS)
(GLS)
PKB

SXPG10322

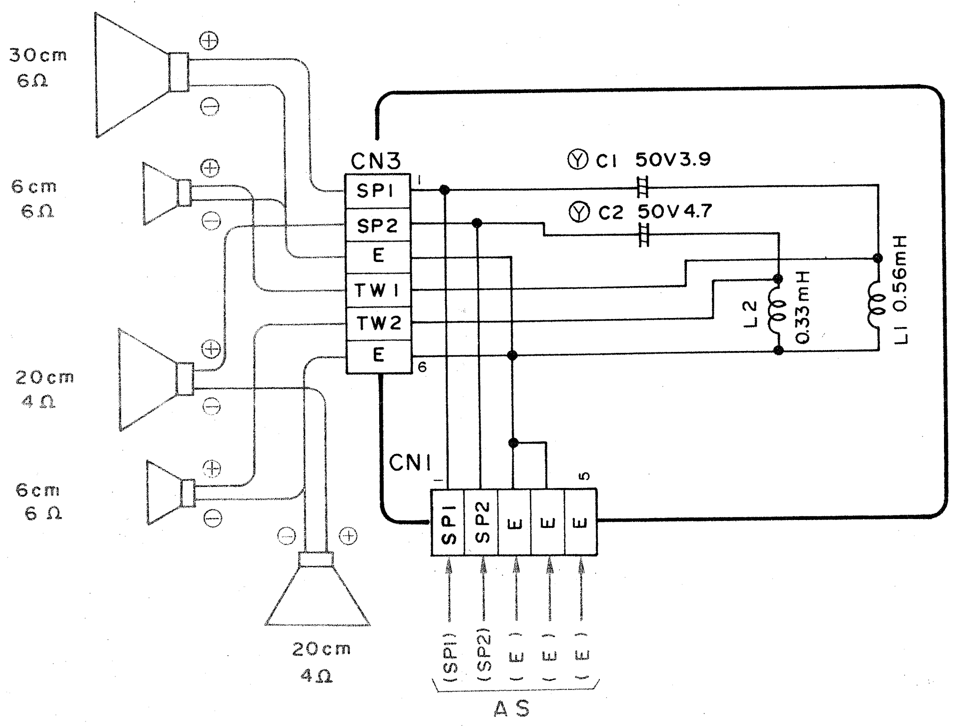

GLS
GLS
CN2
GLS
GLS
GLS
CdS
JP2
CN1
EXP
E
-15
E
JP1
EXPL
EXPL

U. CONTROL PANEL RIGHT CIRCUIT BOARD (CPR)



1
2
3
4
5
6
7
8
9
10
A
B
C
CN1
+5
E08
+5
SCK
E
RXD
TXD
X1 4.5M
IC1
IC2
IC3
IC4
Q1
Q2
Q3
Q4
Q5
Q6
D1
C1 63/220
C2 0.047
C3 470P
C4 50V0.1
C5 33P
C6 100P
R2 10K
R3 10K
R4 10K
R5 10K
R6 10K
orchestral conductor
upper
lower
D82
D79
D74
D75
D84
D81
orchestral
solo synthe
upper tab voices
D78
percussive
D71
st. ensemble
lower tab voices
D73
percussive
D80
st. ensemble
Voice Setting Computer
D101
I
D112
II
D109
III
D106
IV
D102
V
D111
cancel
pre-fixed
multi-tremolo
vibrato
D95
D104
D103
lower harmonic coupler
D94
celeste
D70
D68
D62
D61
D65
D64
D42
D107
D120
D118
U tab voices
L tab voices
chorus
tremolo
D116
D123
D124
D114
U tab voices
U&L orchestral presets
U&L solo synthe presets
L tab voices
D52
D50
D38
D48
D59
D56
D46
U&L orchestral
presets
D23
D20
D17
D28
D24
D92
trombone
D89
saxophone
D86
accordion
D97
clarinet
D93
wah brass
D18
D87
full
D30
D99
trombone
D26
D95
saxophone
D22
D91
clarinet
U&L solo
SUPG11178

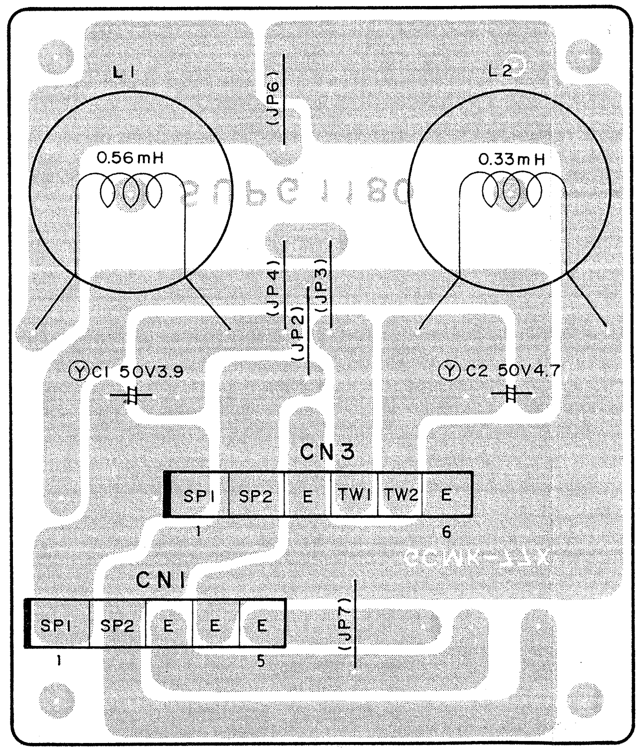
NETWORK CIRCUIT DIAGRAM (NW)



30cm
6Ω
6cm
6Ω
20cm
4Ω
6cm
6Ω
20cm
4Ω
CN3
SP1
SP2
E
TW1
TW2
E
1
6
Ⓨ C1 50V3.9
Ⓨ C2 50V4.7
L2 0.33mH
L1 0.56mH
CN1
SP1
SP2
E
E
E
5
(SP1)
(SP2)
(E)
(E)
(E)
AS
D
E
F

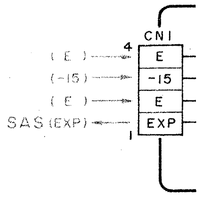
NETWORK CIRCUIT BOARD (NW)

SXPG11802



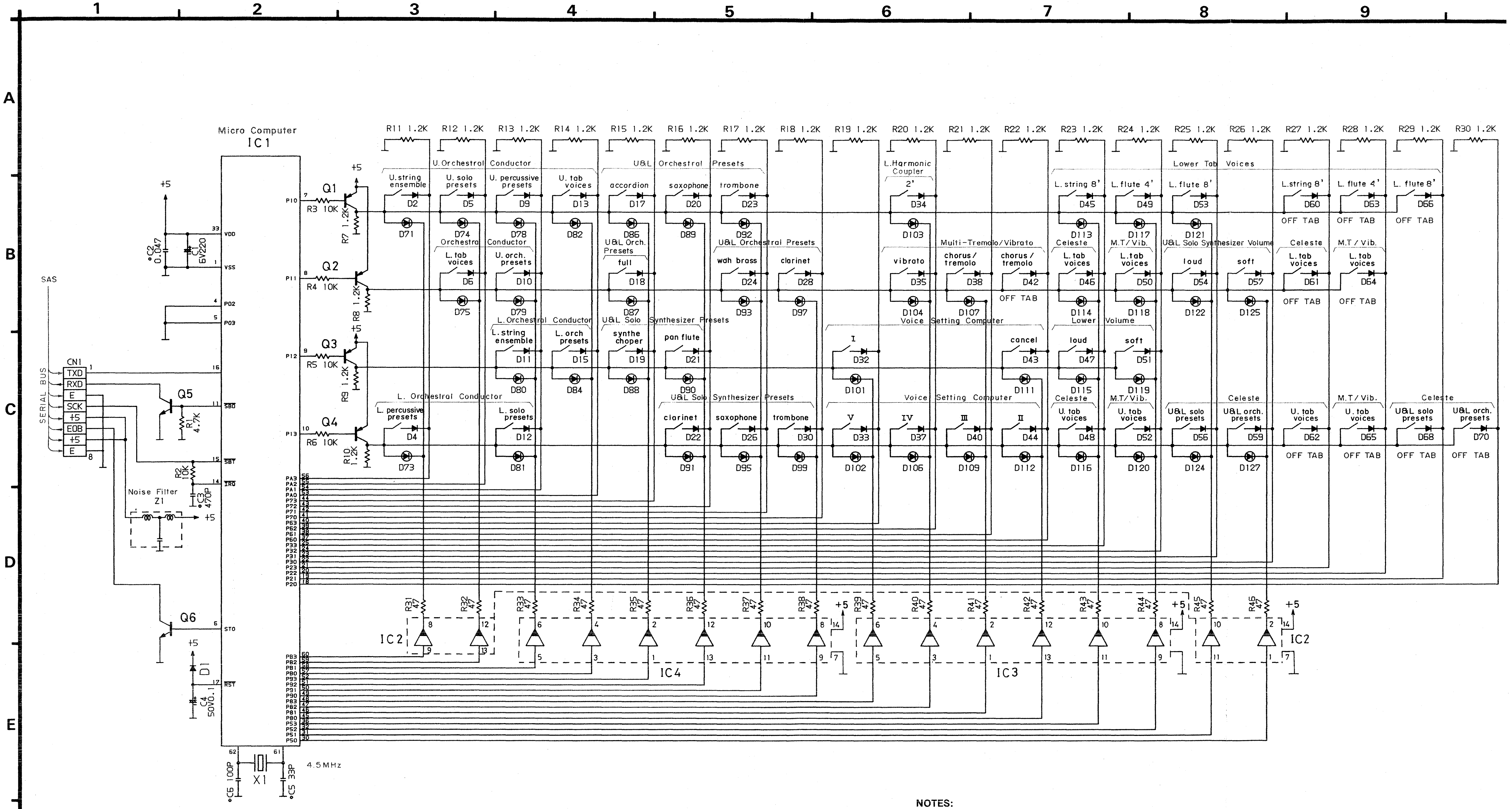
L1
L2
0.56mH
0.33mH
(JP6)
(JP4)
(JP3)
(JP2)
Ⓨ C1 50V3.9
Ⓨ C2 50V4.7
CN3
SP1
SP2
E
TW1
TW2
E
1
6
CN1
SP1
SP2
E
E
E
1
5
(JP7)
SUPG1180

EXPRES



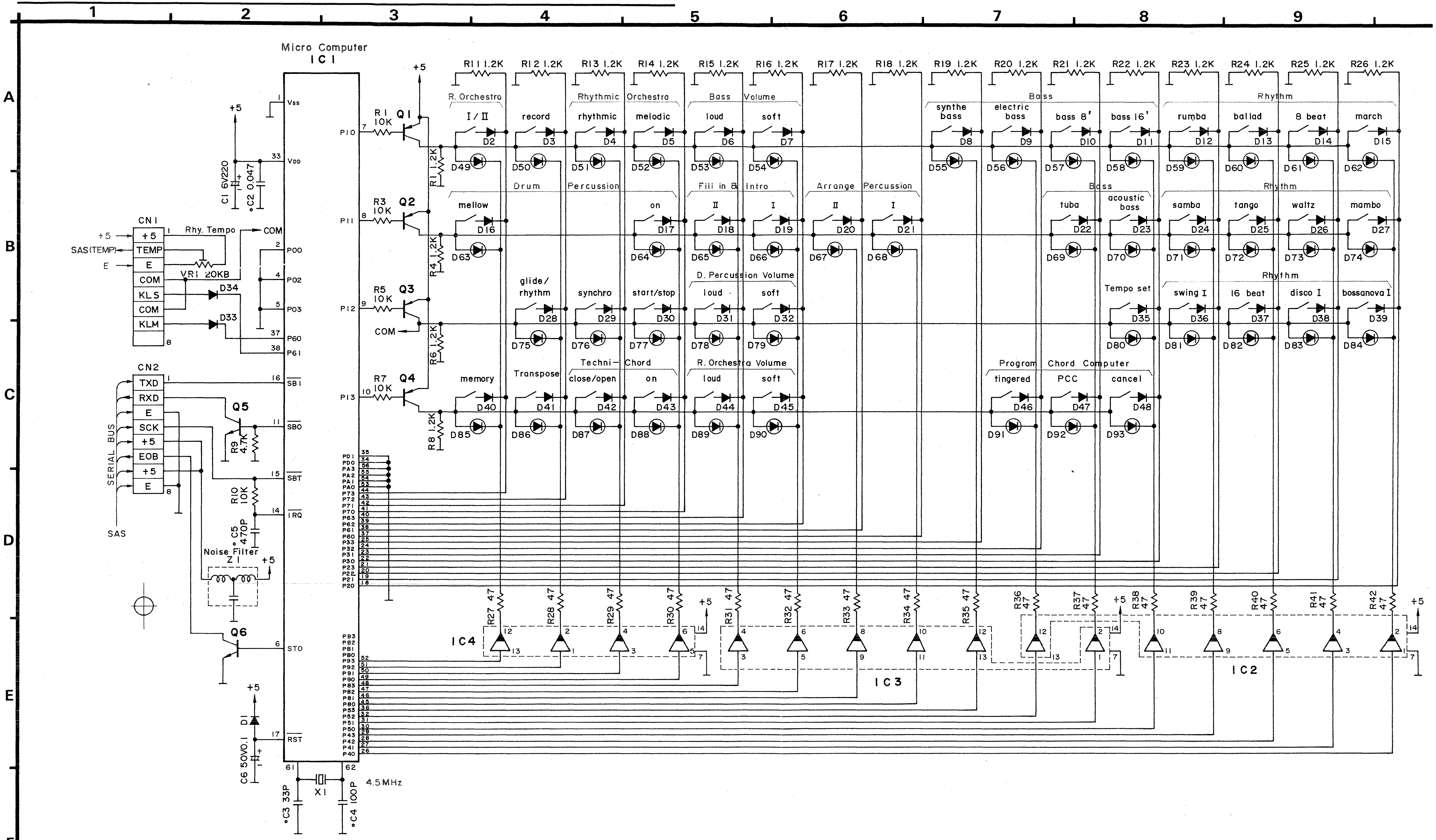
CN1
(E)
(-15)
(E)
SAS(EXP)
E
-15
E
EXP
4
1

U. CONTROL PANEL RIGHT CIRCUIT DIAGRAM (CPR)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
VDD
VSS
P02
P03
SBO
SBT
SRQ
STO
RST
P10
P11
P12
P13
+5
C2 0.047
C1 6V220
SAS
SERIAL BUS
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Q1
Q2
Q3
Q4
Q5
Q6
R1 4.7K
R2 10K
C3 470P
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
Noise Filter
Z1
D1
C4 50V0.1
C5 100P
X1
C5 33P
4.5MHz
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
R27 1.2K
R28 1.2K
R29 1.2K
R30 1.2K
U.Orchestral Conductor
U.string ensemble
U. solo presets
U. percussive presets
U. tab voices
U&L Orchestral Presets
accordion
saxophone
trombone
L.Harmonic Coupler
2'
Lower Tab Voices
L.string 8'
L.flute 4'
L.flute 8'
OFF TAB
Orchestral Conductor
L.tab voices
U.orch. presets
U&L Orch. Presets
full
U&L Orchestral Presets
wah brass
clarinet
Multi-Tremolo/Vibrato
vibrato
chorus / tremolo
Celeste
M.T/Vib.
U&L Solo Synthesizer Volume
loud
soft
L.Orchestral Conductor
U&L Solo Synthesizer Presets
L.string ensemble
L.orch presets
synthe choper
pan flute
I
Voice Setting Computer
cancel
Lower Volume
L. Orchestral Conductor
L. percussive presets
L. solo presets
U&L Solo Synthesizer Presets
clarinet
saxophone
trombone
V
IV
III
II
Celeste
U. tab voices
U&L solo presets
U&L orch. presets
IC2
IC3
IC4
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
R39 47
R40 47
R41 47
R42 47
R43 47
R44 47
R45 47
R46 47
R47 47

NOTES:
- IC'S
  IC1: MN15621GSA
  IC2~4: SVIGM53217
- TRANSISTORS
  Q1~4: 2SA830B
  Q5, 6: 2SC1047C
- DIODES
  D1, 2, 4~6, 9~13, 15, 17~24, 26, 28, 30, 32~35, 37, 38, 40, 42~54, 56, 57, 59~66, 68, 70: MA150IRTA5
  D101, 102, 106, 109, 112: SEL2710KLFM1 (Yellow)
  D71, 73~75, 78~82, 84, 86~93, 95, 97, 99, 103, 104, 107, 111, 113~122, 124, 125, 127: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  Z1: EXATA223S

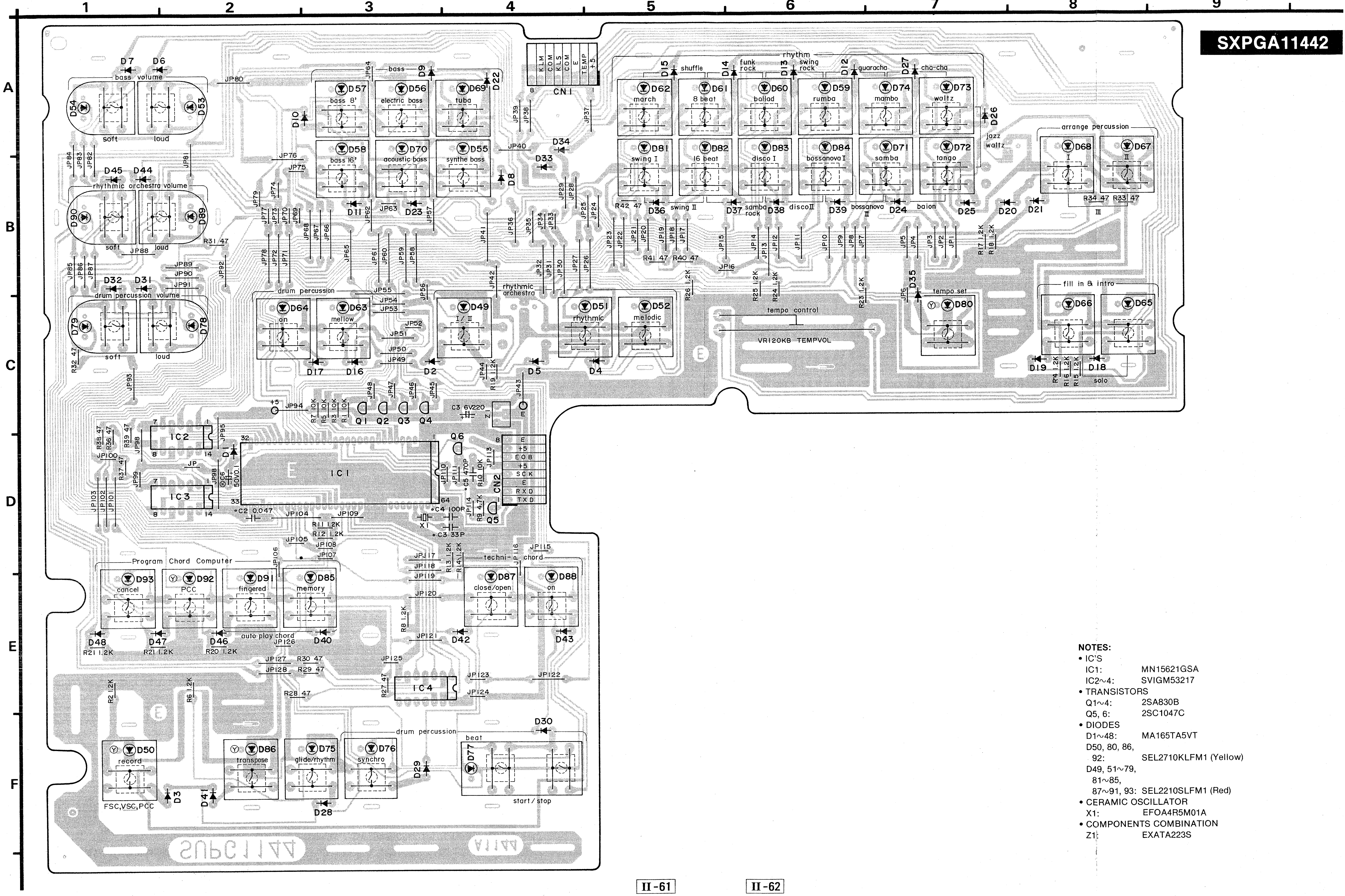
CONTROL PANEL SW. LEFT CIRCUIT DIAGRAM (CPSL)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
Vss
VDD
P00
P02
P03
P60
P61
SB1
SB0
SBT
IRQ
STO
RST
P10
P11
P12
P13
+5
C1 6V220
C2 0.047
CN1
+5
TEMP
E
COM
KLS
COM
KLM
SAS(TEMP)
Rhy. Tempo
COM
VR1 20KB
D34
D33
CN2
TXD
RXD
E
SCK
+5
EOB
+5
E
SERIAL BUS
SAS
Q5
R9 4.7K
R10 10K
C5 470P
Noise Filter
Z1
Q6
D1
C6 50V0.1
X1
4.5MHz
C3 33P
C4 100P
R1 10K
Q1
R3 10K
Q2
R5 10K
Q3
COM
R7 10K
Q4
R1 1.2K
R4 1.2K
R6 1.2K
R8 1.2K
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
R. Orchestra
I/II
record
Rhythmic
rhythmic
Orchestra
melodic
Bass
loud
Volume
soft
Bass
synthe bass
electric bass
bass 8'
bass 16'
Rhythm
rumba
ballad
8 beat
march
Drum
Percussion
mellow
on
Fill in & Intro
II
I
Arrange
II
Percussion
I
Bass
tuba
acoustic bass
Rhythm
samba
tango
waltz
mambo
glide/rhythm
synchro
start/stop
D. Percussion Volume
loud
soft
Tempo set
Rhythm
swing I
16 beat
disco I
bossanova I
memory
Transpose
Techni-Chord
close/open
on
R. Orchestra Volume
loud
soft
Program
Chord Computer
fingered
PCC
cancel
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
D25
D26
D27
D28
D29
D30
D31
D32
D35
D36
D37
D38
D39
D40
D41
D42
D43
D44
D45
D46
D47
D48
D49
D50
D51
D52
D53
D54
D55
D56
D57
D58
D59
D60
D61
D62
D63
D64
D65
D66
D67
D68
D69
D70
D71
D72
D73
D74
D75
D76
D77
D78
D79
D80
D81
D82
D83
D84
D85
D86
D87
D88
D89
D90
D91
D92
D93
PD1
PD0
PA3
PA2
PA1
PA0
P73
P72
P71
P70
P63
P62
P61
P60
P33
P32
P31
P30
P23
P22
P21
P20
PB3
PB2
PB1
PB0
P93
P92
P91
P90
P83
P82
P81
P80
P53
P52
P51
P50
P43
P42
P41
P40
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
R39 47
R40 47
R41 47
R42 47
IC4
IC3
IC2
+5

NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2~4: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~48: MA165TA5VT
  - D50, 80, 86, 92: SEL2710KLFM1 (Yellow)
  - D49, 51~79, 81~85, 87~91, 93: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S

CONTROL PANEL SW. LEFT CIRCUIT BOARD (CPSL)

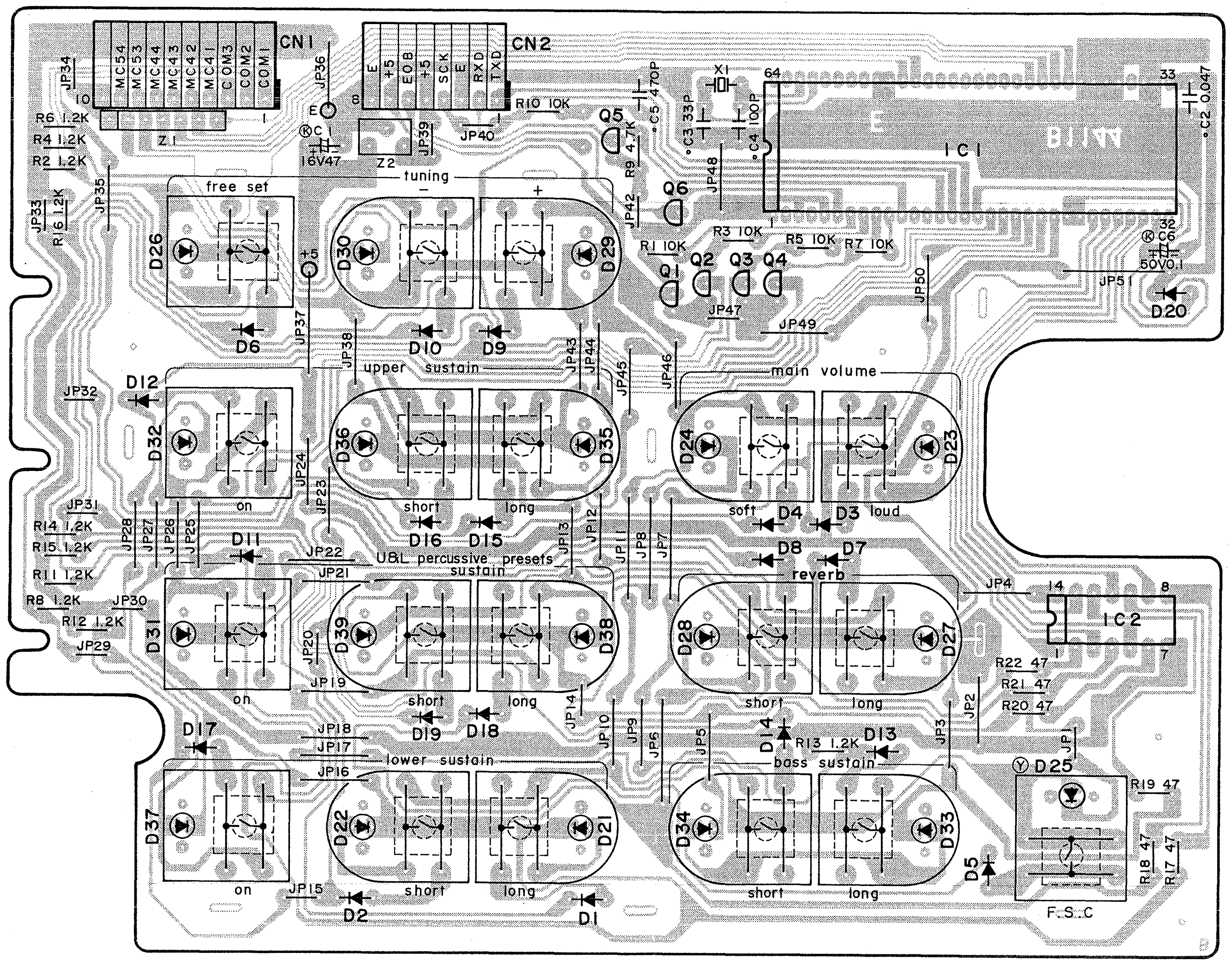


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPGA11442
bass volume
soft
loud
D7
D6
D54
D53
rhythmic orchestra volume
D45
D44
D90
D89
drum percussion volume
D32
D31
D79
D78
bass
D57 bass 8'
D56 electric bass
D69 tuba
D58 bass 16'
D70 acoustic bass
D55 synthe bass
D9
D22
D10
D8
D11
D23
CN1
KLM
COM
KLS
COM
E
TEMP
+5
D34
D33
rhythm
shuffle
funk rock
swing rock
guaracha
cha-cha
D15
D14
D13
D12
D27
D62 march
D61 8 beat
D60 ballad
D59 rumba
D74 mambo
D73 waltz
D26
jazz waltz
D81 swing I
D82 16 beat
D83 disco I
D84 bossanova I
D71 samba
D72 tango
D36 swing II
D37 samba rock
D38 disco II
D39 bossanova II
D24 baion
D25
D20
D21
arrange percussion
D68 I
D67 II
III
drum percussion
D64 on
D63 mellow
D49 I/II
rhythmic orchestra
D51 rhythmic
D52 melodic
D17
D16
D2
D5
D4
tempo control
VR120KB TEMPVOL
tempo set
D35
D80
fill in & intro
D66
D65
D19
D18
solo
Q1
Q2
Q3
Q4
Q5
Q6
IC1
IC2
IC3
IC4
CN2
E
+5
EOB
+5
SCK
E
RXD
TXD
X1
Z1
Program Chord Computer
D93 cancel
D92 PCC
D91 fingered
D85 memory
auto play chord
D48
D47
D46
D40
techni-chord
D87 close/open
D88 on
D42
D43
D50 record
FSC,VSC,PCC
D3
D41
D86 transpose
D75 glide/rhythm
D76 synchro
D28
D29
drum percussion
beat
D30
D77
start/stop
SUPC1144

NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2~4: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~48: MA165TA5VT
  - D50, 80, 86, 92: SEL2710KLFM1 (Yellow)
  - D49, 51~79, 81~85, 87~91, 93: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S

CONTROL PANEL SW. RIGHT CIRCUIT BOARD (CPSR)

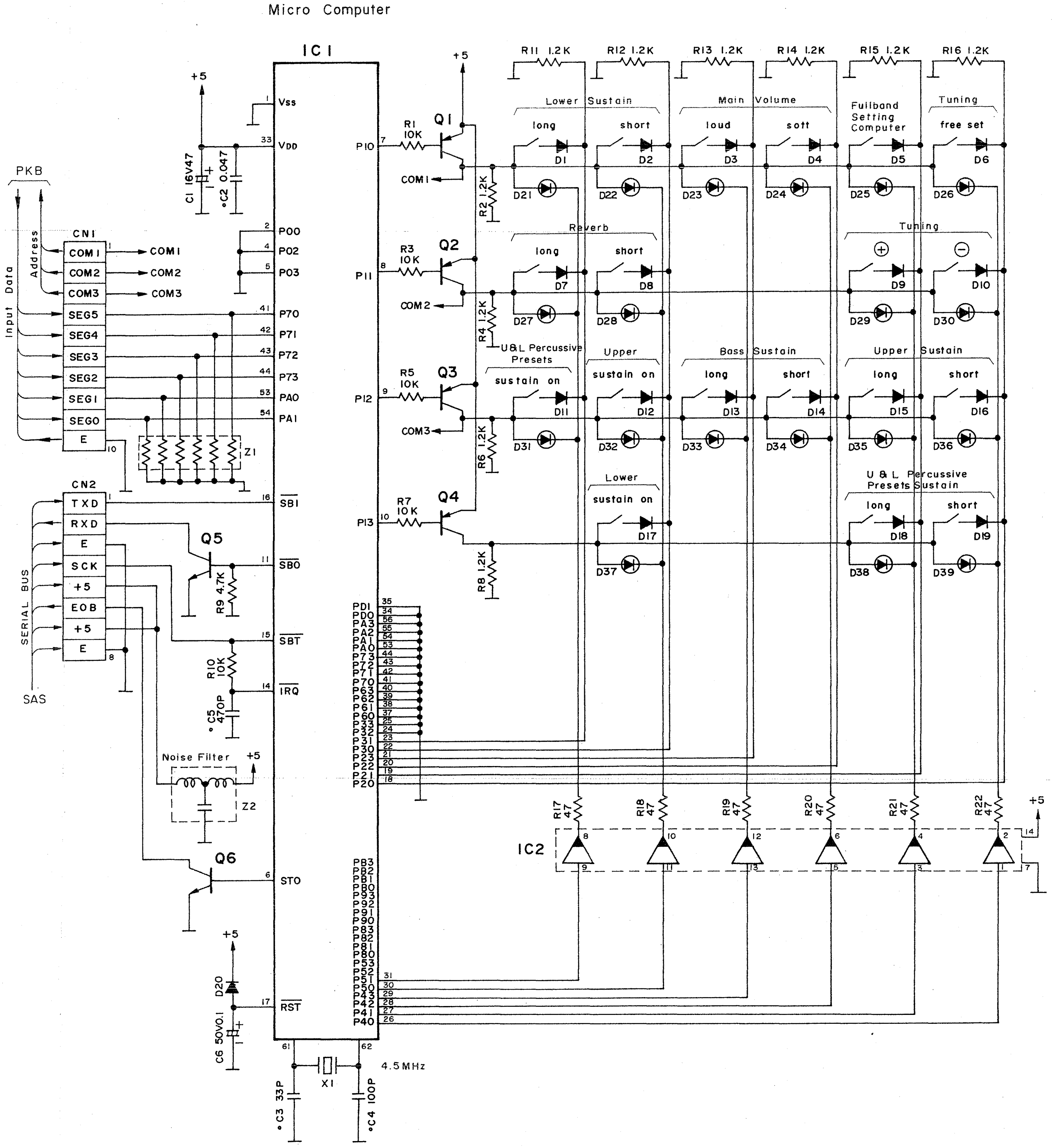
SXPGB11441


CN1
CN2
IC1
IC2
Z1
Z2
X1
MC54
MC53
MC44
MC43
MC42
MC41
COM3
COM2
COM1
E
+5
EOB
+5
SCK
E
RXD
TXD
free set
tuning
upper sustain
main volume
on
short
long
soft
loud
U&L percussive presets sustain
reverb
lower sustain
bass sustain
F.S.C
R1 10K
R3 10K
R5 10K
R7 10K
R10 10K
R9 4.7K
C5 470P
C3 33P
C4 100P
C2 0.047
C1 16V47
C6 50V0.1
R19 47
R18 47
R17 47
R22 47
R21 47
R20 47
R13 1.2K
R12 1.2K

NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~20: MA165TA5VT
  - D25: SEL2710KLFM1 (Yellow)
  - D21~24, 26~39: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATIONS
  - Z1: EXBP86122MM
  - Z2: EXATA223S

CONTROL PANEL SW. RIGHT CIRCUIT DIAGRAM (CPSR)

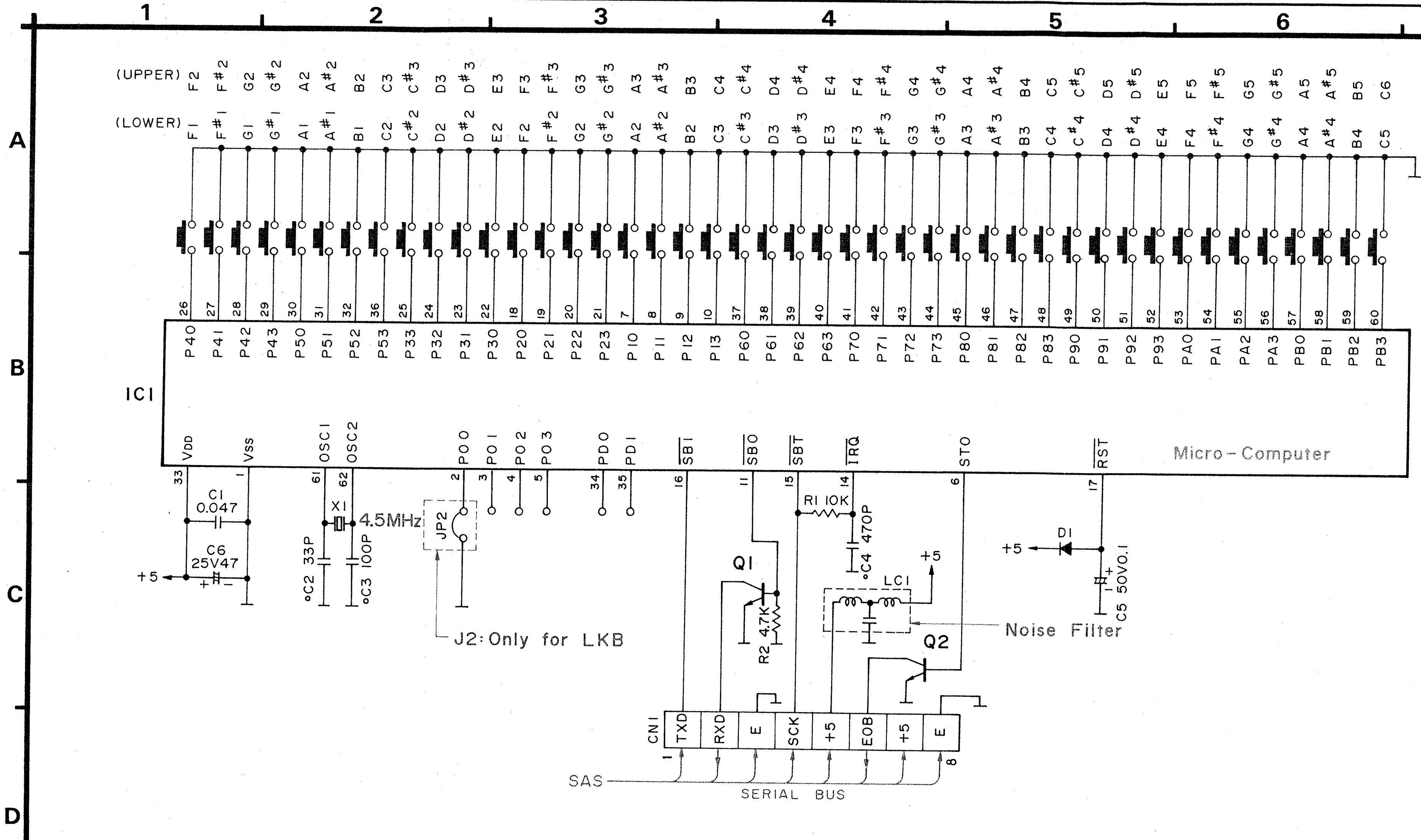

Micro Computer
IC1
Vss
VDD
P10
P11
P12
P13
P00
P02
P03
P70
P71
P72
P73
PA0
PA1
SBI
SBO
SBT
IRQ
STO
RST
PKB
Address
Input Data
CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
CN2
TXD
RXD
E
SCK
+5
EOB
+5
E
SERIAL BUS
SAS
Noise Filter
Z1
Z2
Q1
Q2
Q3
Q4
Q5
Q6
IC2
X1
4.5MHz
C3 33P
C4 100P
C6 50V0.1
D20
C1 16V47
C2 0.047
R1 10K
R3 10K
R5 10K
R7 10K
R9 4.7K
R10 10K
C5 470P
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 47
R18 47
R19 47
R20 47
R21 47
R22 47
Lower Sustain
Main Volume
Fullband Setting Computer
Tuning
long
short
loud
soft
free set
Reverb
U&L Percussive Presets
Upper
Bass Sustain
Upper Sustain
sustain on
Lower
U & L Percussive Presets Sustain

NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~20: MA165TA5VT
  - D25: SEL2710KLFM1 (Yellow)
  - D21~24, 26~39: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATIONS
  - Z1: EXBP86122MM
  - Z2: EXATA223S

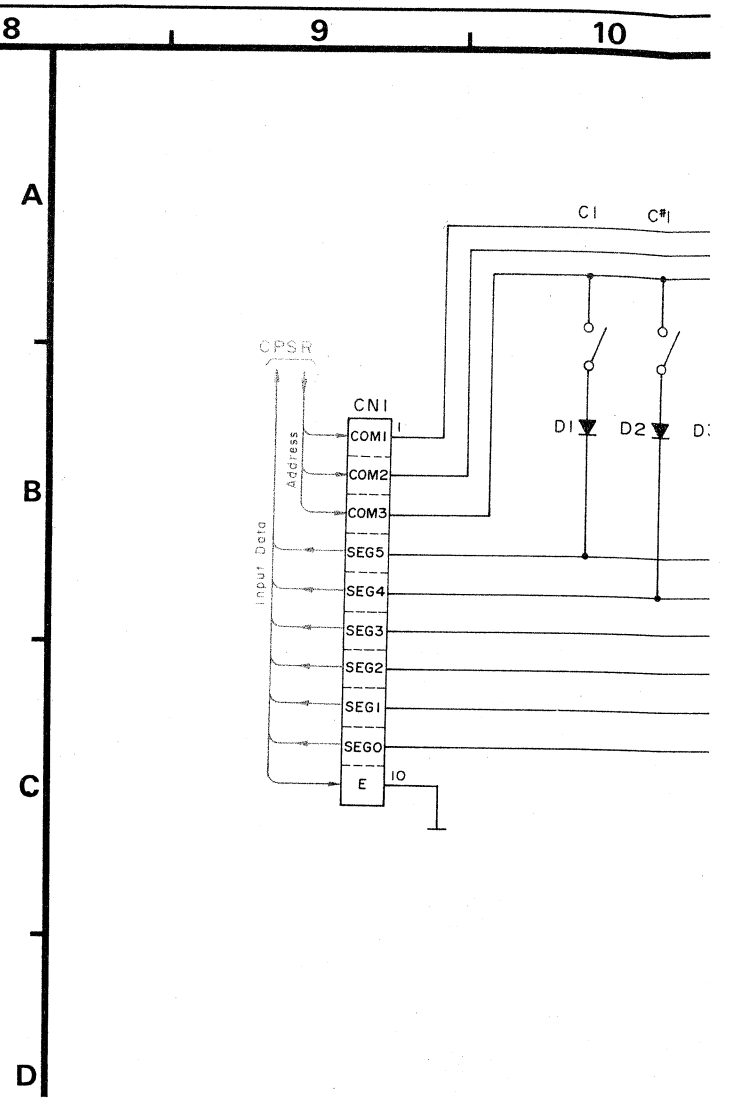
UPPER & LOWER KEYBOARD CIRCUIT DIAGRAM (UKB & LKB)

PEDAL KE



1 2 3 4 5 6 7 8
A B C D
(UPPER) F2 F#2 G2 G#2 A2 A#2 B2 C3 C#3 D3 D#3 E3 F3 F#3 G3 G#3 A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5 C#5 D5 D#5 E5 F5 F#5 G5 G#5 A5 A#5 B5 C6
(LOWER) F1 F#1 G1 G#1 A1 A#1 B1 C2 C#2 D2 D#2 E2 F2 F#2 G2 G#2 A2 A#2 B2 C3 C#3 D3 D#3 E3 F3 F#3 G3 G#3 A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5
IC1
P40 P41 P42 P43 P50 P51 P52 P53 P33 P32 P31 P30 P20 P21 P22 P23 P10 P11 P12 P13 P60 P61 P62 P63 P70 P71 P72 P73 P80 P81 P82 P83 P90 P91 P92 P93 PA0 PA1 PA2 PA3 PB0 PB1 PB2 PB3
VDD VSS OSC1 OSC2 PO0 PO1 PO2 PO3 PD0 PD1 SBI SBO SBT IRQ STO RST
Micro-Computer
C1 0.047
C6 25V47
+5
X1 4.5MHz
C2 33P
C3 100P
JP2
J2: Only for LKB
R1 10K
C4 470P
Q1
R2 4.7K
LC1
Noise Filter
Q2
D1
C5 50V0.1
CN1 TXD RXD E SCK +5 EOB +5 E
SAS
SERIAL BUS

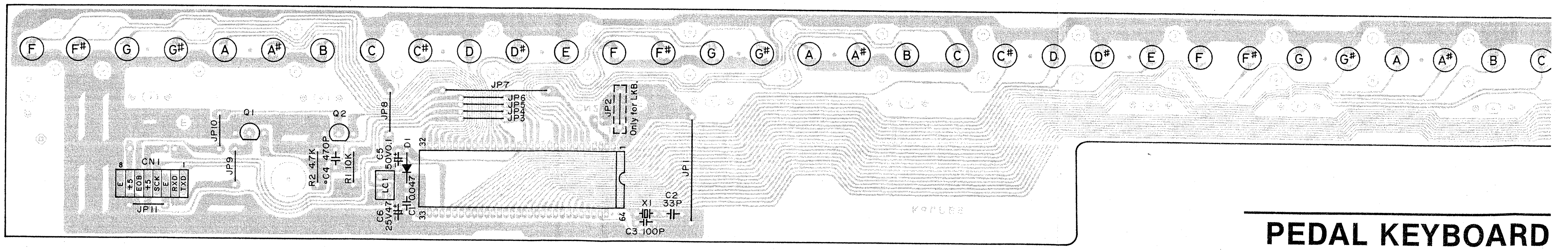
NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATION
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EFOA4R5M01A



8 9 10
A B C D
C1 C#1
CPSR
Address
Input Data
CN1
COM1 COM2 COM3 SEG5 SEG4 SEG3 SEG2 SEG1 SEG0 E
D1 D2

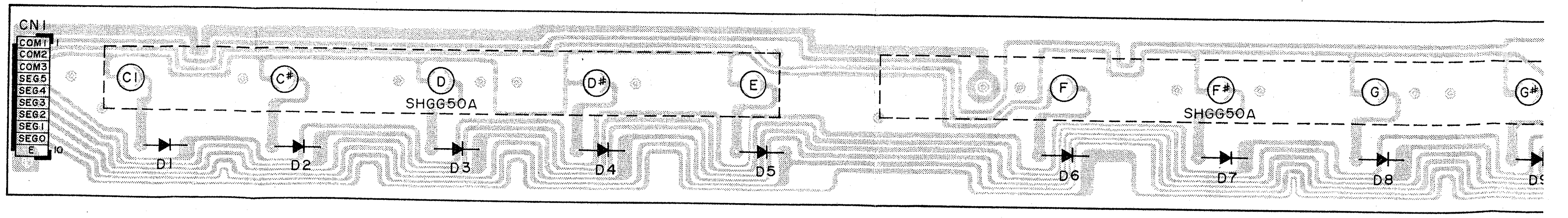
UPPER & LOWER KEYBOARD CIRCUIT BOARD (UKB & LKB)

NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATION
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EFOA4R5M01A



F F# G G# A A# B C C# D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C
JP7
JP2 Only for LKB.
JP8
JP10
JP9
JP11
Q1
Q2
CN1
E +5 EOB +5 SCK E RXD TXD
R2 4.7K
C4 470P
R1 10K
C5 50V0.1
D1
LC1
C1 0.047
C6 25V47
X1
C2 33P
C3 100P
JP1

PEDAL KEYBOARD

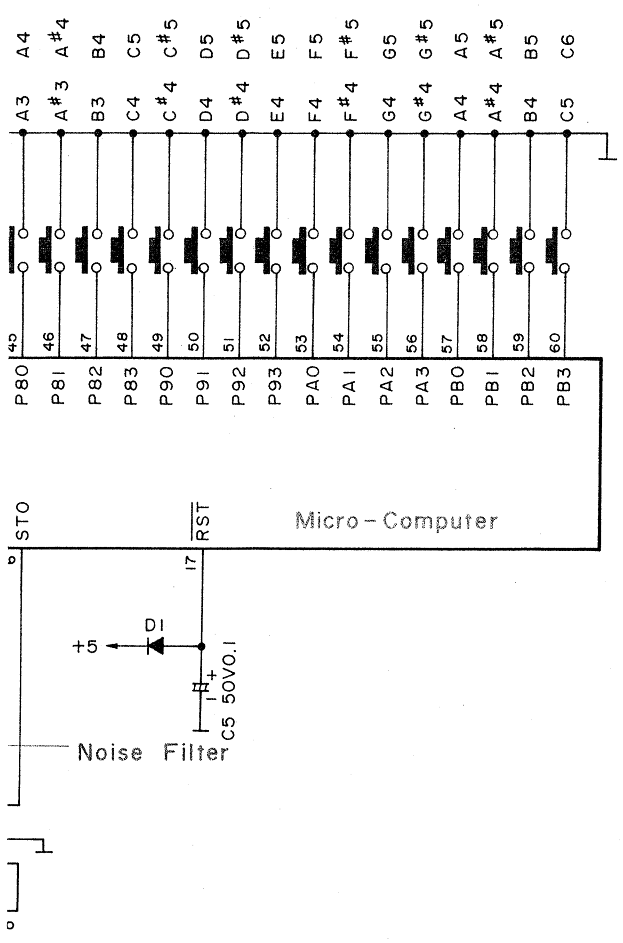


CN1
COM1 COM2 COM3 SEG5 SEG4 SEG3 SEG2 SEG1 SEG0 E
C1 C# D D# E F F# G G#
SHG650A
SHG650A
D1 D2 D3 D4 D5 D6 D7 D8

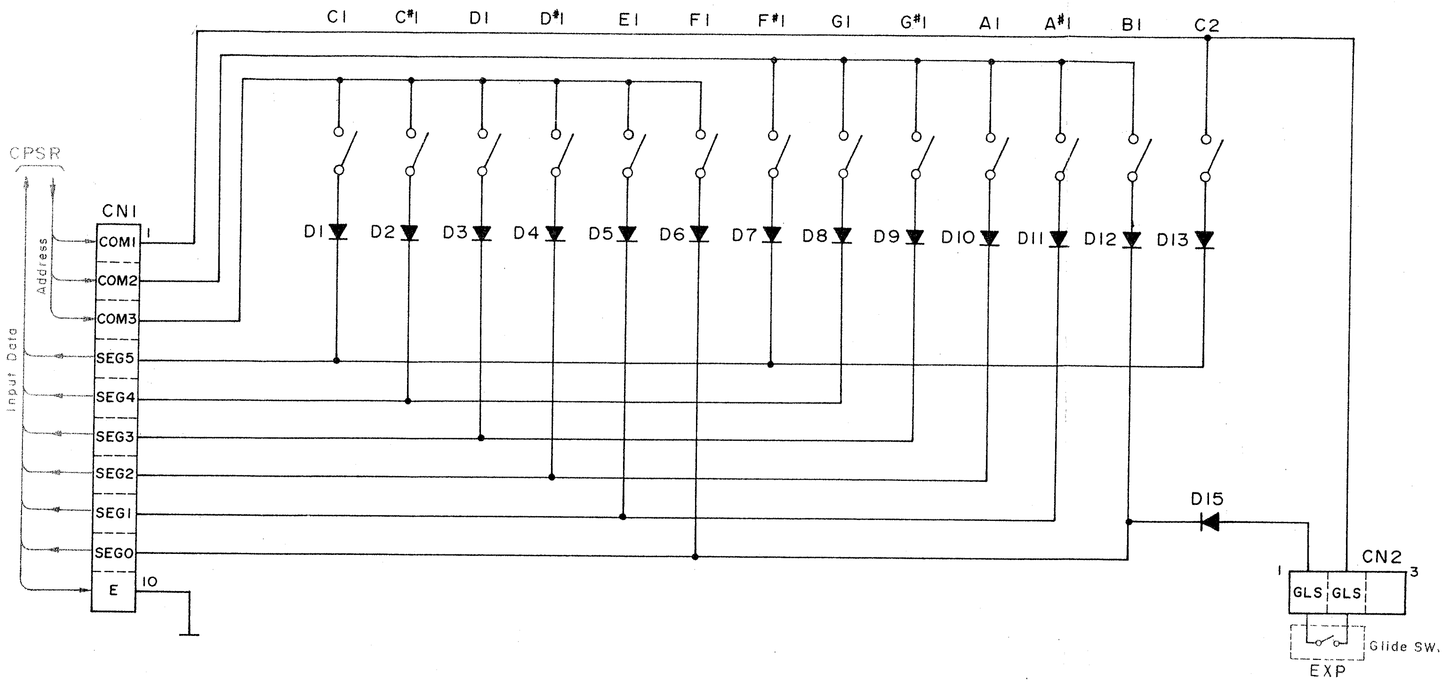
UKB & LKB)

PEDAL KEYBOARD CIRCUIT DIAGRAM (PKB)

5 6 7 8 9 10 11 12 13 14


A4 A#4 B4 C5 C#5 D5 D#5 E5 F5 F#5 G5 G#5 A5 A#5 B5 C6
A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5
46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
P80 P81 P82 P83 P90 P91 P92 P93 PA0 PA1 PA2 PA3 PB0 PB1 PB2 PB3
STO
RST
Micro-Computer
17
D1
+5
C5 50V0.1
Noise Filter

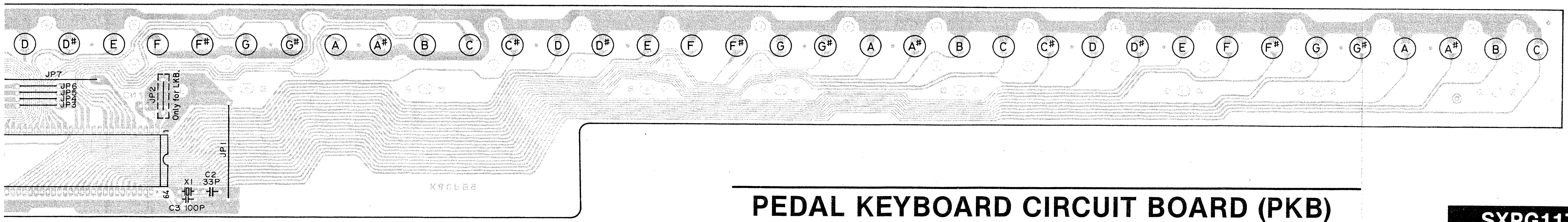
NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATION
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EFOA4R5M01A


C1 C#1 D1 D#1 E1 F1 F#1 G1 G#1 A1 A#1 B1 C2
CPSR
Address
Input Data
CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
1
10
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13
D15
CN2
1
3
GLS GLS
Glide SW.
EXP

NOTES:
- DIODES
  D1~13, 15: MA150IR

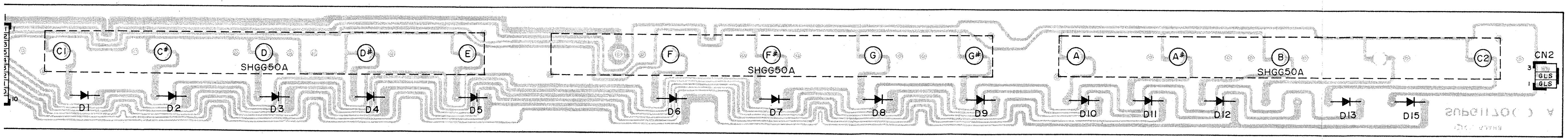
JKB & LKB)

UKB: K80VPB4A **LKB: K80VPB2A**


D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C
JP7
JP6
JP5
JP4
JP3
JP2
Only for LKB
JP1
X1
C2 33P
C3 100P
64

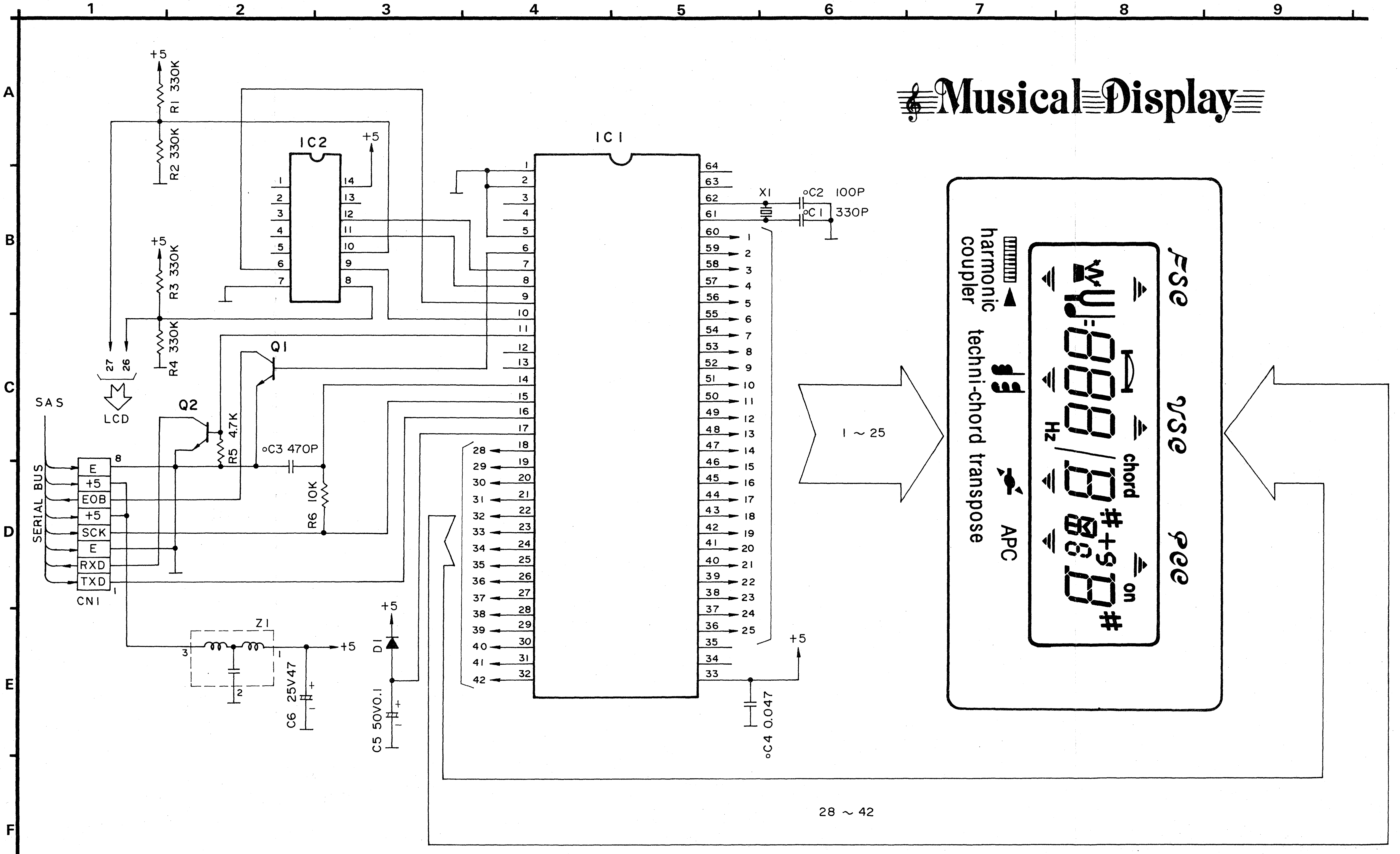
PEDAL KEYBOARD CIRCUIT BOARD (PKB)

SXPG11701


C1 C# D D# E F F# G G# A A# B C2
SHGG50A
SHGG50A
SHGG50A
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D15
CN2
3
1
GLS
GLS
10

NOTES:
- DIODES
  D1~13, 15: MA150IR

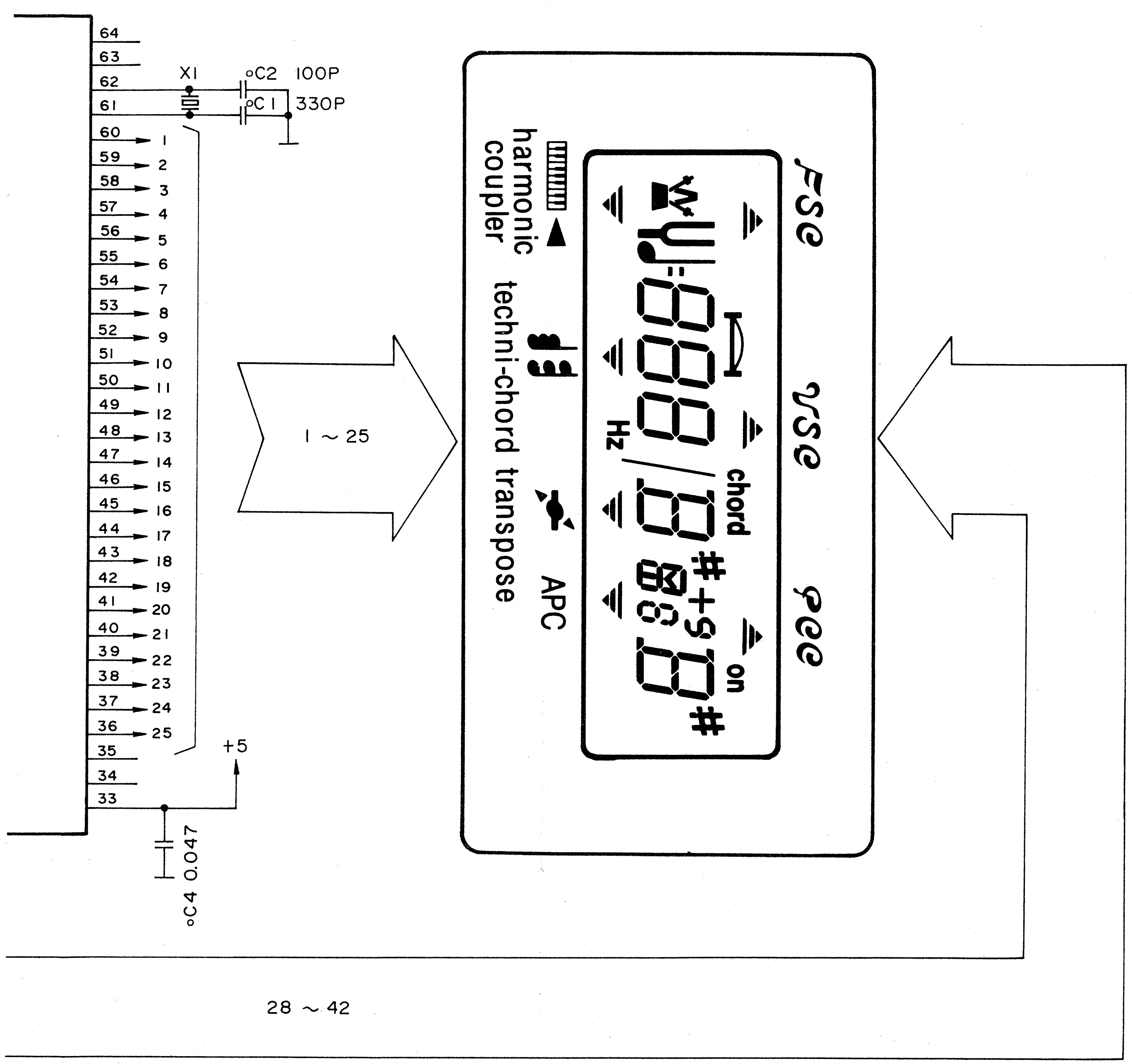
MUSICAL DISPLAY CIRCUIT DIAGRAM (MD)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Musical Display
IC1
IC2
+5
R1 330K
R2 330K
R3 330K
R4 330K
R5 4.7K
R6 10K
Q1
Q2
X1
C1 330P
C2 100P
C3 470P
C4 0.047
C5 50V0.1
C6 25V47
D1
Z1
CN1
SAS
SERIAL BUS
E
+5
EOB
SCK
RXD
TXD
LCD
27
26
1 ~ 25
28 ~ 42
harmonic coupler
techni-chord transpose
FSC
VSC
PCC
APC
Hz
chord
on

NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGUPD4066B
- TRANSISTORS
  - Q1: 2SC1685R
  - Q2: 2SC1047C
- DIODE
  - D1: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A

5 6 7 8 9

Musical Display


64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
X1
C2 100P
C1 330P
+5
C4 0.047
1 ~ 25
28 ~ 42
FSE
VSE
PEE
chord
Hz
on
harmonic coupler
techni-chord transpose
APC

NOTES:
- IC'S
  IC1: MN15621GSA
  IC2: SVIGUPD4066B
- TRANSISTORS
  Q1: 2SC1685R
  Q2: 2SC1047C
- DIODE
  D1: MA165TA5VT
- COMPONENTS COMBINATION
  Z1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EFOA4R5M01A

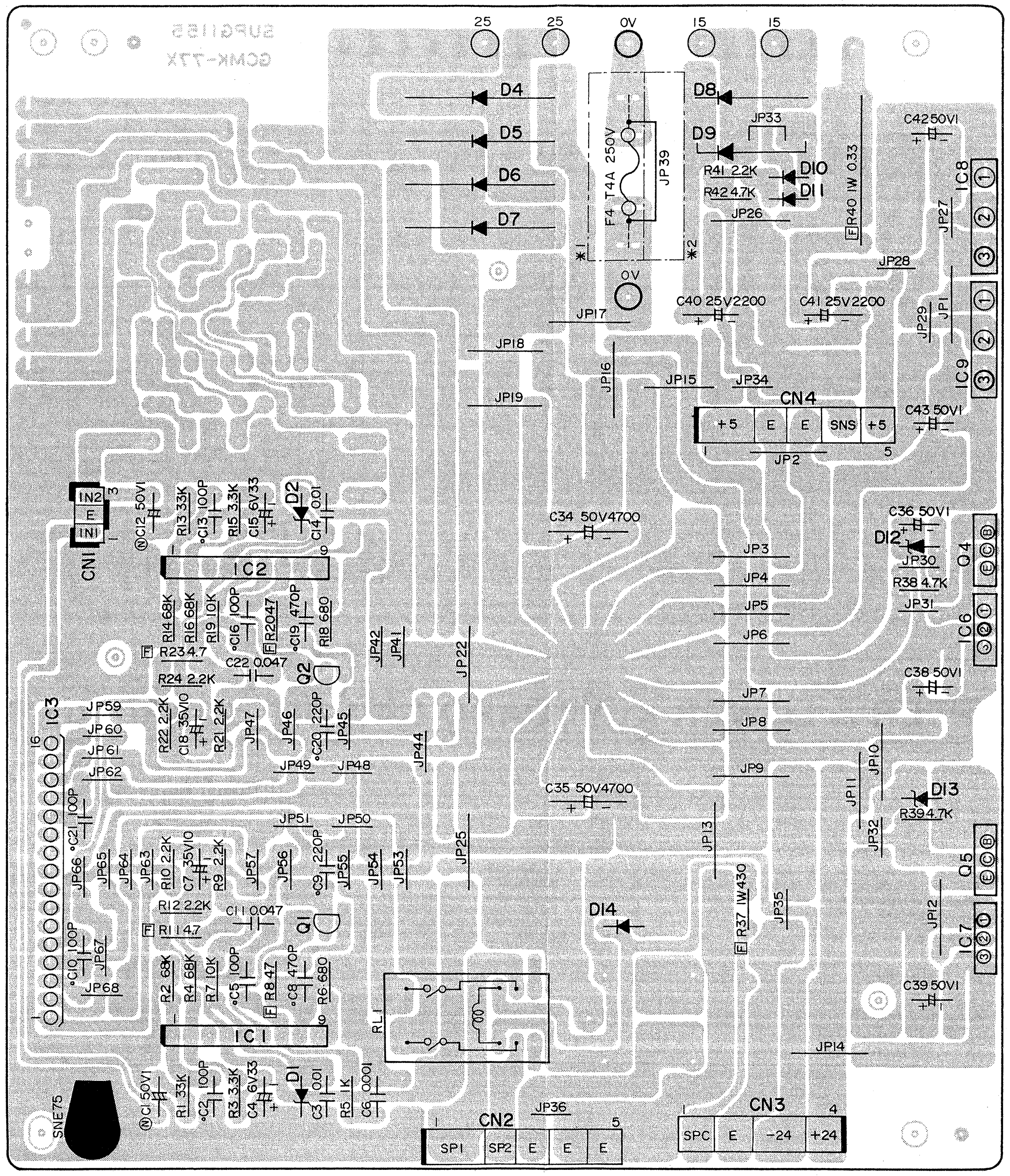
AMP & POWER SUPPLY CIRCUIT BOARD (AS)

1 2 3 4 5

A B C D E F

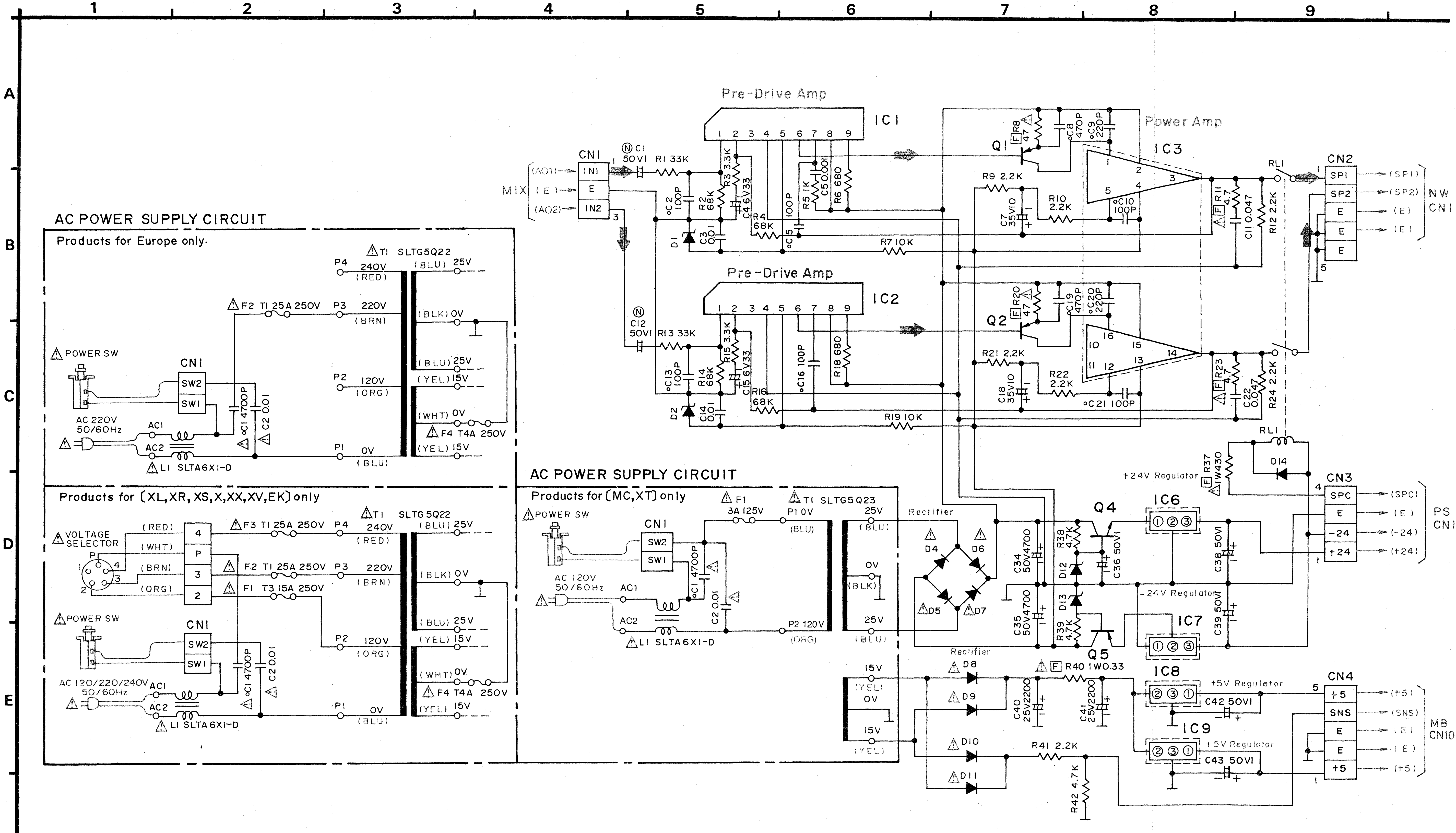
SXPG11551
∗ 1...F4: T4A 250V

SXPG11552
∗ 2...JP39: Products for [MC], [XT] only.


SUPG1155
GCMK-77X
25
25
0V
15
15
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
F4 T4A 250V
JP39
∗1
∗2
0V
R41 2.2K
R42 4.7K
R40 1W 0.33
C42 50V1
IC8
IC9
C40 25V2200
C41 25V2200
CN4
+5
E
E
SNS
+5
C43 50V1
C34 50V4700
C35 50V4700
C36 50V1
Q4
R38 4.7K
IC6
C38 50V1
R39 4.7K
Q5
IC7
C39 50V1
R37 1W430
CN1
IN2
IN1
IC2
IC1
IC3
Q1
Q2
C12 50V1
R13 3.3K
C13 100P
R15 3.3K
C15 6V33
C14 0.01
R14 68K
R16 68K
R19 10K
C16 100P
R20 47
C19 470P
R18 680
R23 4.7
C22 0.047
R24 2.2K
R22 2.2K
C18 35V10
R21 2.2K
C20 220P
C21 100P
R10 2.2K
C7 35V10
R9 2.2K
C9 220P
R12 2.2K
C11 0.047
R11 4.7
C10 100P
R2 68K
R4 68K
R7 10K
C5 100P
R8 4.7
C8 470P
R6 680
C1 50V1
R1 3.3K
C2 100P
R3 3.3K
C4 6V33
C3 0.01
R5 1K
C6 0.001
RL1
SNE75
CN2
SP1
SP2
E
E
E
CN3
SPC
E
-24
+24

NOTES:
- IC'S
  IC1, 2: AN7060
  IC3: SVIGSTK2028
  IC6: AN7824
  IC7: SVIGUPC7924H
  IC8, 9: SVIGSI3052P
- TRANSISTORS
  Q1, 2: 2SA1123R
  Q4: 2SD1276QR
  Q5: 2SB950QR
- DIODES
  D1, 2: MA1062
  D4~7: SVDS3V20
  D8, 9: SVDS2V20
  D10, 11, 14: MA165TA5VT
  D12, 13: MA1270
- RELAY
  RL1: SSYGMR5212S

AMP & POWER SUPPLY CIRCUIT DIAGRAM (AS)



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Pre-Drive Amp
IC1
Pre-Drive Amp
IC2
Power Amp
IC3
Q1
Q2
Q4
Q5
IC6
IC7
IC8
IC9
CN1
CN2
CN3
CN4
MIX
(AO1)
(E)
(AO2)
IN1
E
IN2
Ⓝ C1 50V1
R1 33K
Ⓝ C12 50V1
R13 33K
R7 10K
R19 10K
R9 2.2K
R10 2.2K
R21 2.2K
R22 2.2K
RL1
SP1
SP2
E
(SP1)
(SP2)
NW CN1
SPC
-24
+24
(SPC)
(-24)
(+24)
PS CN1
+24V Regulator
-24V Regulator
+5V Regulator
R37 1W430
D14
Rectifier
D4
D5
D6
D7
D8
D9
D10
D11
R40 1W0.33
R41 2.2K
R42 4.7K
C42 50V1
C43 50V1
+5
SNS
(+5)
(SNS)
MB CN101
AC POWER SUPPLY CIRCUIT
Products for Europe only.
T1 SLTG5Q22
F2 T1.25A 250V
F4 T4A 250V
POWER SW
SW2
SW1
AC 220V 50/60Hz
AC1
AC2
L1 SLTA6X1-D
P1
P2
P3
P4
240V
220V
120V
0V
25V
15V
(RED)
(BRN)
(ORG)
(BLU)
(BLK)
(YEL)
(WHT)
C1 4700P
C2 0.01
Products for [XL, XR, XS, X, XX, XV, EK] only
VOLTAGE SELECTOR
F3 T1.25A 250V
F1 T3.15A 250V
AC 120/220/240V 50/60Hz
AC POWER SUPPLY CIRCUIT
Products for [MC, XT] only
F1 3A 125V
T1 SLTG5Q23
AC 120V 50/60Hz

NOTES:

- IC'S

IC1, 2:	AN7060
IC3:	SVIGSTK2028
IC6:	AN7824
IC7:	SVIGUPC7924H
IC8, 9:	SVIGSI3052P

- TRANSISTORS

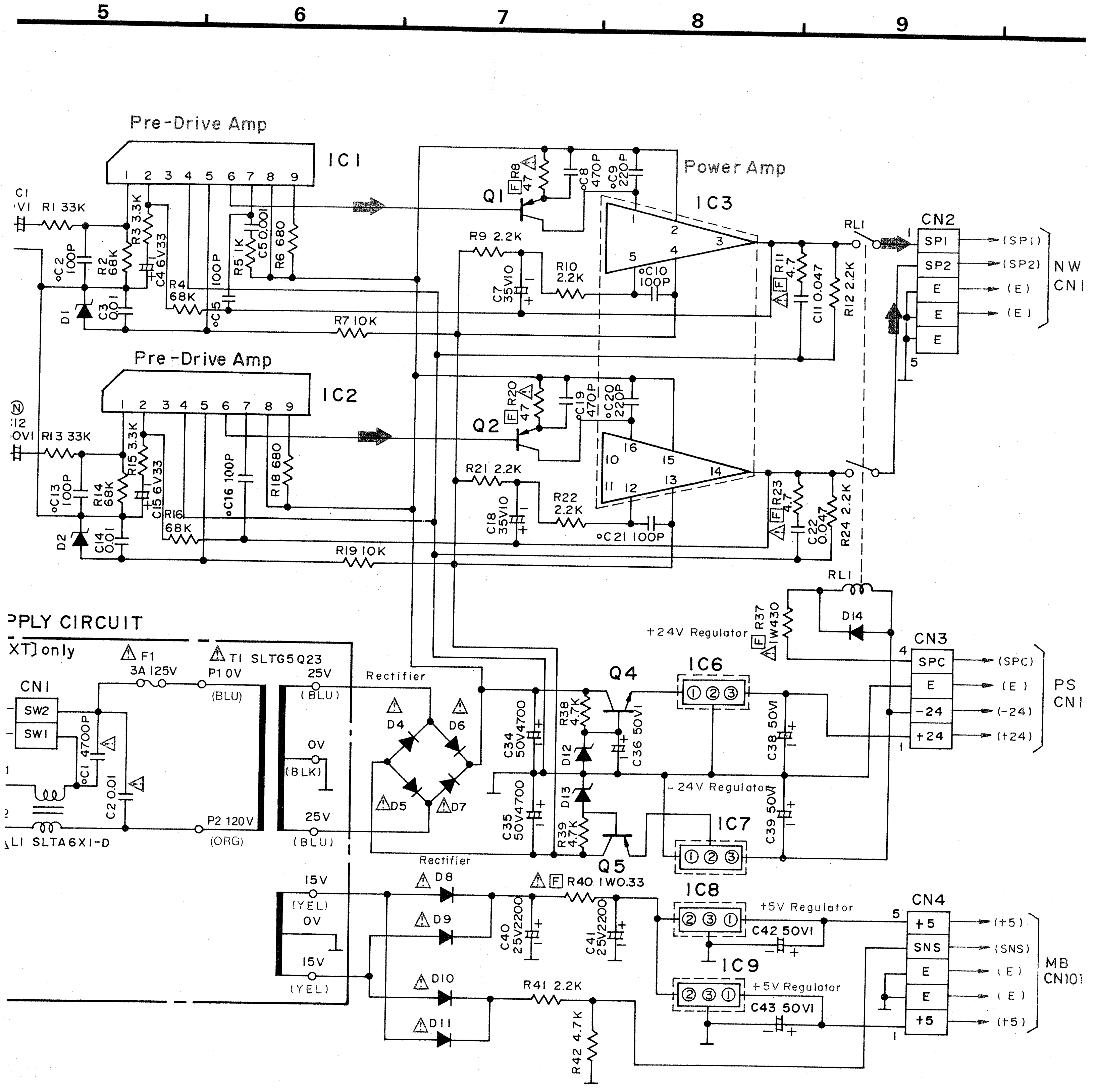
Q1, 2:	2SA1123R
Q4:	2SD1276QR
Q5:	2SB950QR

- DIODES

D1, 2:	MA1062
D4~7:	SVDS3V20
D8, 9:	SVDS2V20
D10, 11, 14:	MA165TA5VT
D12, 13:	MA1270

- RELAY

RL1:	SSYGMR5212S


5
6
7
8
9
Pre-Drive Amp
IC1
Power Amp
IC3
Q1
Pre-Drive Amp
IC2
Q2
R1 33K
R3 3.3K
C4 6V33
R2 68K
C2 100P
C3 0.01
D1
R4 68K
C5 100P
R5 1K
C50.001
R6 680
R7 10K
R8 47
C8 470P
C9 220P
R9 2.2K
R10 2.2K
C7 35V10
C10 100P
R11 4.7
C11 0.047
R12 2.2K
RL1
CN2
SP1
SP2
E
(SP1)
(SP2)
(E)
NW CN1
R13 33K
R15 3.3K
C15 6V33
R14 68K
C13 100P
R16 68K
C16 100P
R18 680
C14 0.01
D2
R19 10K
R20 47
C19 470P
C20 220P
R21 2.2K
C18 35V10
R22 2.2K
C21 100P
R23 4.7
C22 0.047
R24 2.2K
PPLY CIRCUIT
XT] only
CN1
SW2
SW1
C1 4700P
C2 0.01
L1 SLTA6X1-D
F1 3A 125V
T1 SLTG5Q23
P1 0V (BLU)
P2 120V (ORG)
25V (BLU)
0V (BLK)
25V (BLU)
Rectifier
D4
D5
D6
D7
C34 50V4700
C35 50V4700
R38 4.7K
D12
D13
R39 4.7K
Q4
C36 50V1
Q5
+24V Regulator
IC6
-24V Regulator
IC7
C38 50V1
C39 50V1
R37 1W430
RL1
D14
CN3
SPC
E
-24
+24
(SPC)
(E)
(-24)
(+24)
PS CN1
15V (YEL)
0V
15V (YEL)
Rectifier
D8
D9
D10
D11
C40 25V2200
R40 1W0.33
C41 25V2200
R41 2.2K
R42 4.7K
IC8
+5V Regulator
C42 50V1
IC9
+5V Regulator
C43 50V1
CN4
+5
SNS
E
E
+5
(+5)
(SNS)
(E)
(E)
(+5)
MB CN101

NOTES:

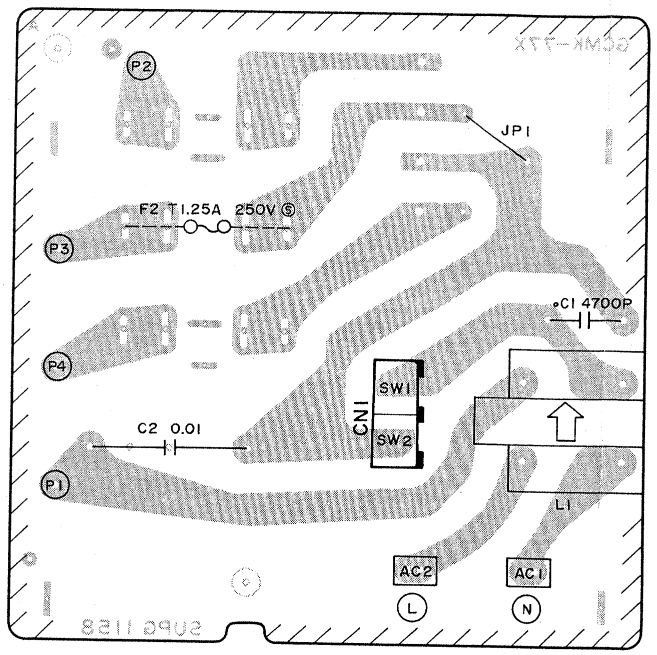
- IC'S
  - IC1, 2: AN7060
  - IC3: SVIGSTK2028
  - IC6: AN7824
  - IC7: SVIGUPC7924H
  - IC8, 9: SVIGSI3052P
- TRANSISTORS
  - Q1, 2: 2SA1123R
  - Q4: 2SD1276QR
  - Q5: 2SB950QR
- DIODES
  - D1, 2: MA1062
  - D4~7: SVDS3V20
  - D8, 9: SVDS2V20
  - D10, 11, 14: MA165TA5VT
  - D12, 13: MA1270
- RELAY
  - RL1: SSYGMR5212S

AC POWER SUPPLY CIRCUIT BOARD (ACP)

1
2
3
4
A
B
C
D
E
F

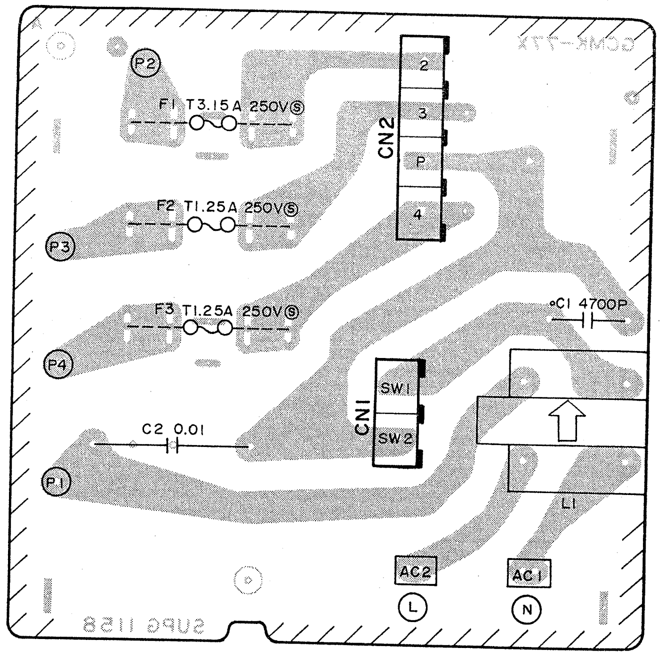
* Products for Europe only.

SXPG11581


P2
P3
P4
P1
JP1
F2 T1.25A 250V
C1 4700P
C2 0.01
CN1
SW1
SW2
L1
AC2
AC1
L
N
SUPG 1158

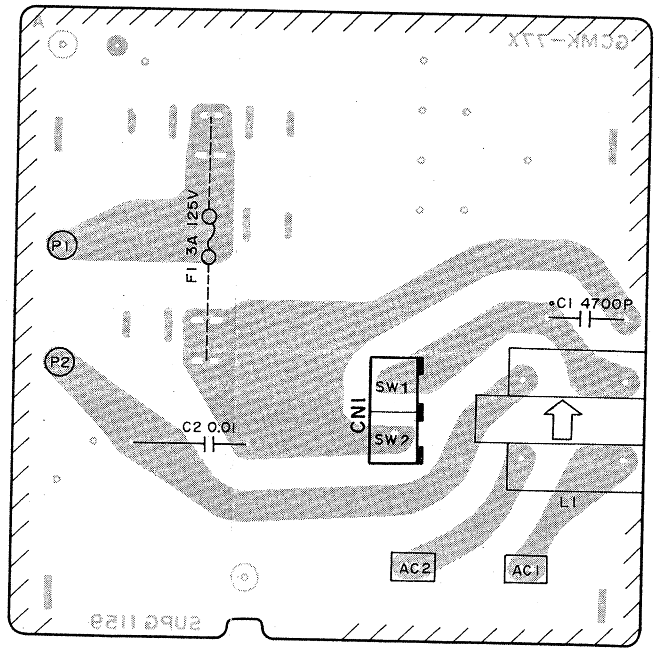
* Products for [EK], [XL], [XR], [XS], [X], [XX] and [XV] only.

SXPG11583

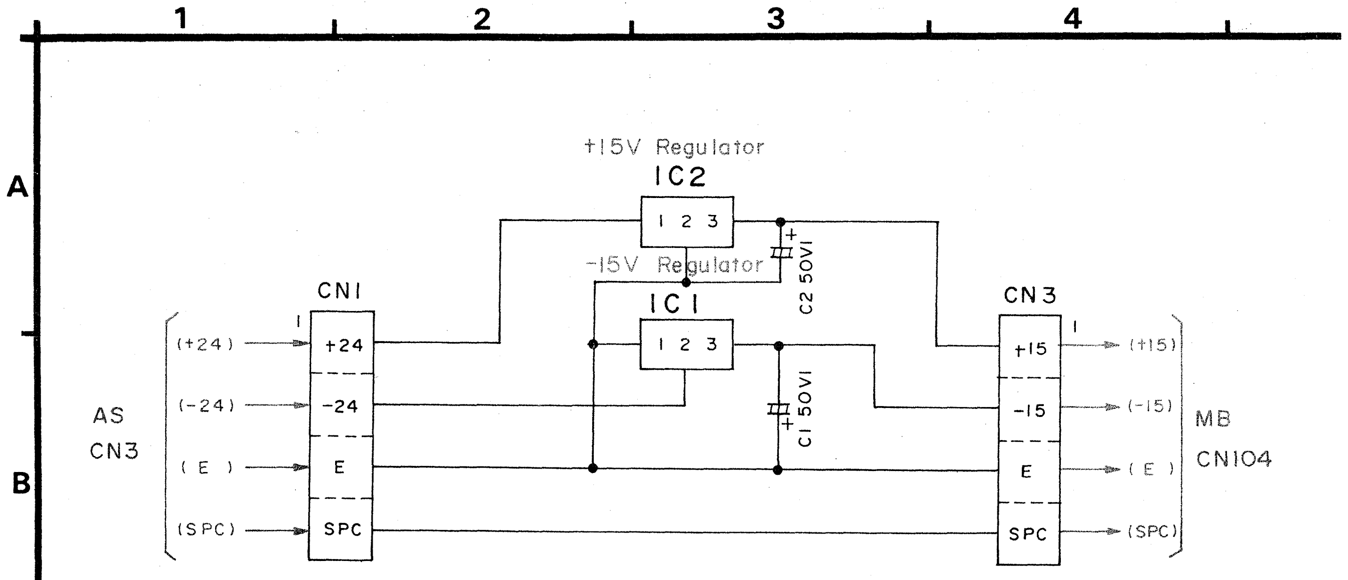

P2
P3
P4
P1
F1 T3.15A 250V
F2 T1.25A 250V
F3 T1.25A 250V
CN2
2
3
P
4
C1 4700P
C2 0.01
CN1
SW1
SW2
L1
AC2
AC1
L
N
SUPG 1158

* Products for [MC], [XT] only.

SXPG11592


P1
P2
F1 3A 125V
C1 4700P
C2 0.01
CN1
SW1
SW2
L1
AC2
AC1
SUPG 1159

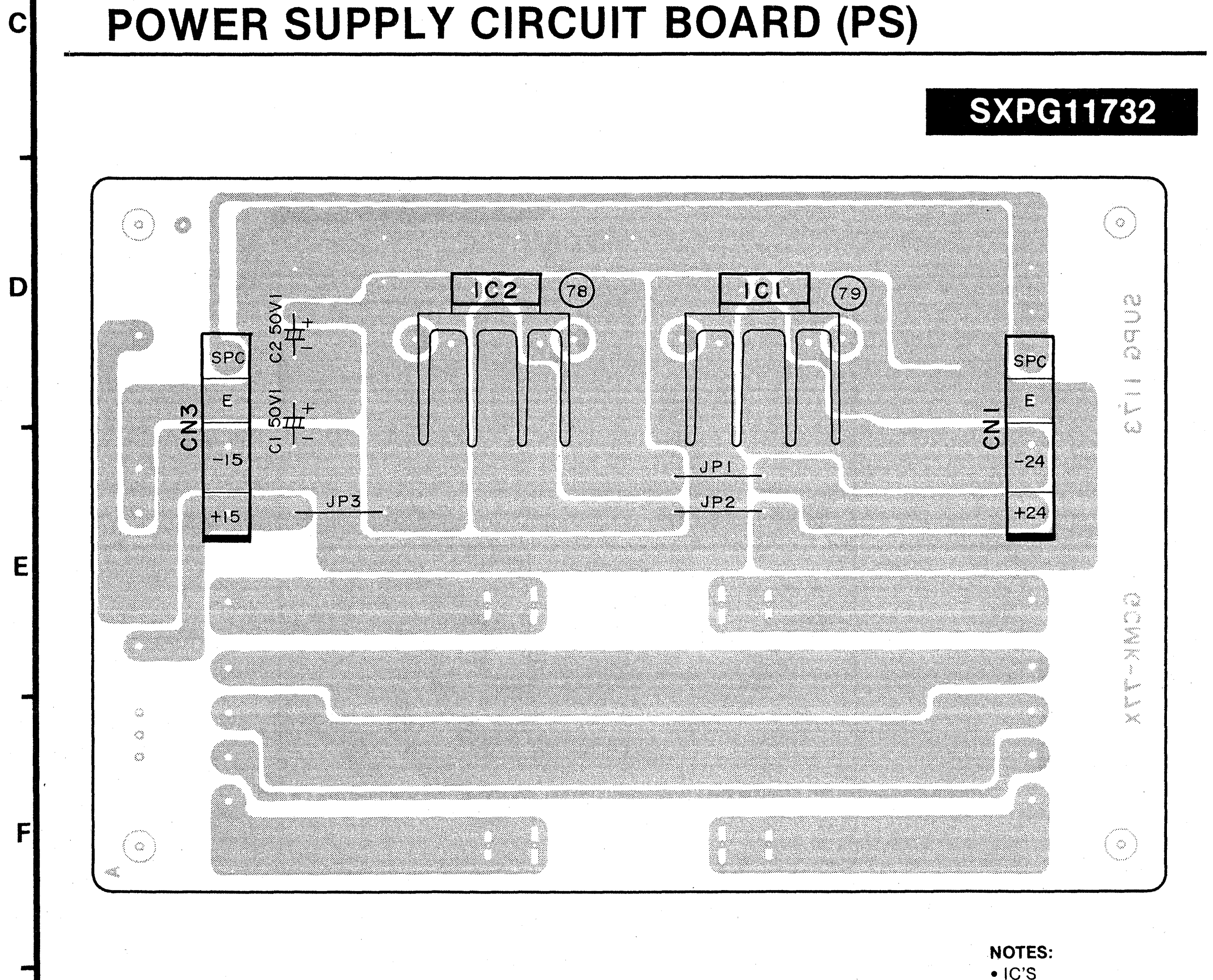
POWER SUPPLY CIRCUIT DIAGRAM (PS)


1
2
3
4
A
B
+15V Regulator
IC2
1 2 3
-15V Regulator
IC1
1 2 3
C2 50V1
C1 50V1
CN1
CN3
AS
CN3
(+24)
(-24)
(E)
(SPC)
+24
-24
E
SPC
+15
-15
(+15)
(-15)
MB
CN104

NOTES:
- IC'S
  IC1: SVIGUPC7915H
  IC2: AN7815

POWER SUPPLY CIRCUIT BOARD (PS)

SXPG11732


C
D
E
F
IC2
78
IC1
79
C2 50V1
C1 50V1
CN3
SPC
E
-15
+15
CN1
SPC
E
-24
+24
JP1
JP2
JP3
A

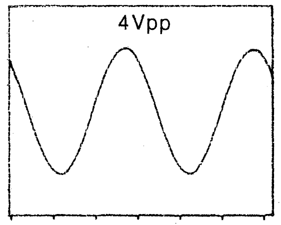
NOTES:
- IC'S
  IC1: SVIGUPC7915H
  IC2: AN7815

SX-E55 OUTPUT WAVEFORMS

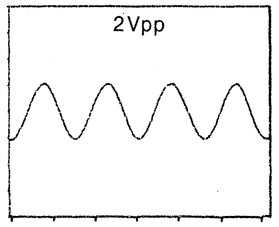
The waveform shown below may somewhat change due to variation of the products.

UPPER TAB

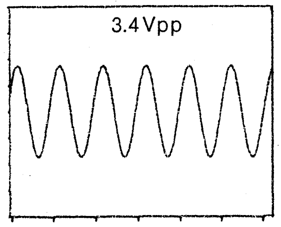
FLUTE 16′



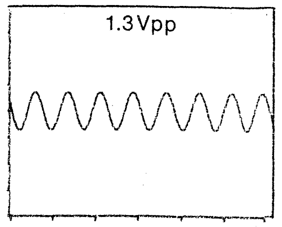
FLUTE 8′



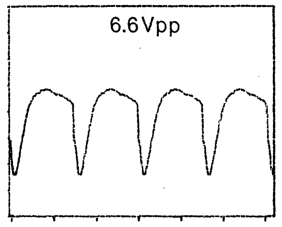
FLUTE 5¹/₃′



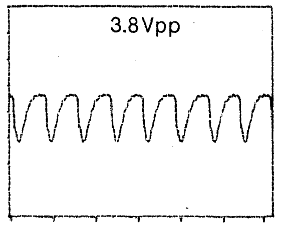
FLUTE 4′



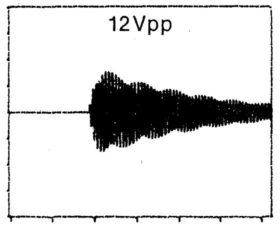
STRING 8′



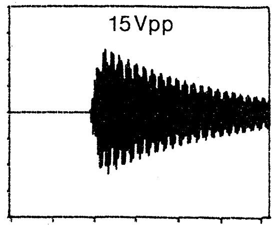
STRING 4′



PERCUSSIVE TONE 4′

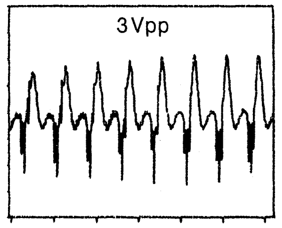


PERCUSSIVE TONE 2²/₃′

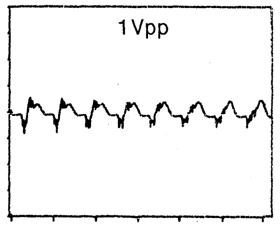


STRING ENSEMBLE

U. STRING ENSEMBLE

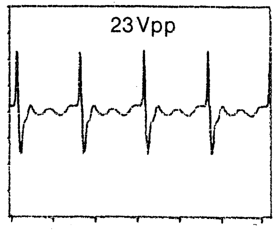


L. STRING ENSEMBLE



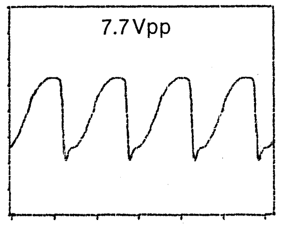
SOLO SYNTHE PRESETS

TROMBONE

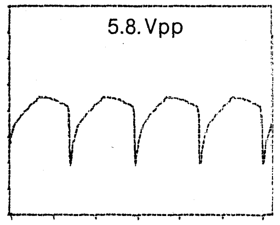


ORCHESTRAL PRESETS

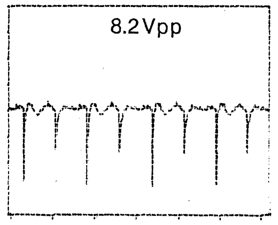
TROMBONE



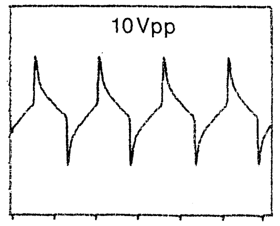
SAXOPHONE

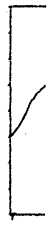


ACCORDION



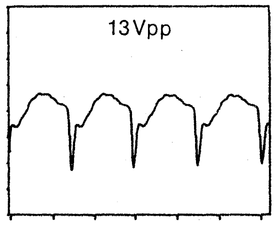
CLARINET



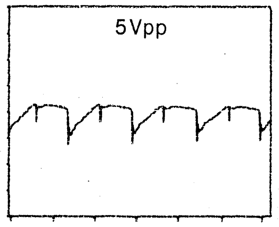


PERCUSSIVE PRESETS

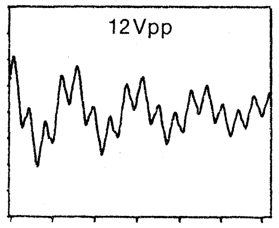
PIANO



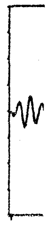
HARPSICHORD



VIBRAPHONE

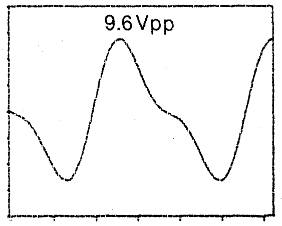


GUITAR

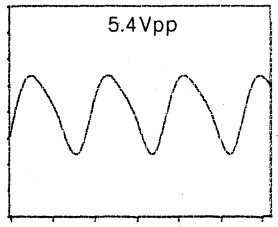


BASS

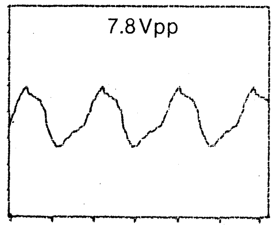
BASS 16′



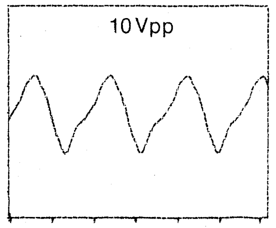
BASS 8′

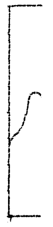


ELECTRIC BASS



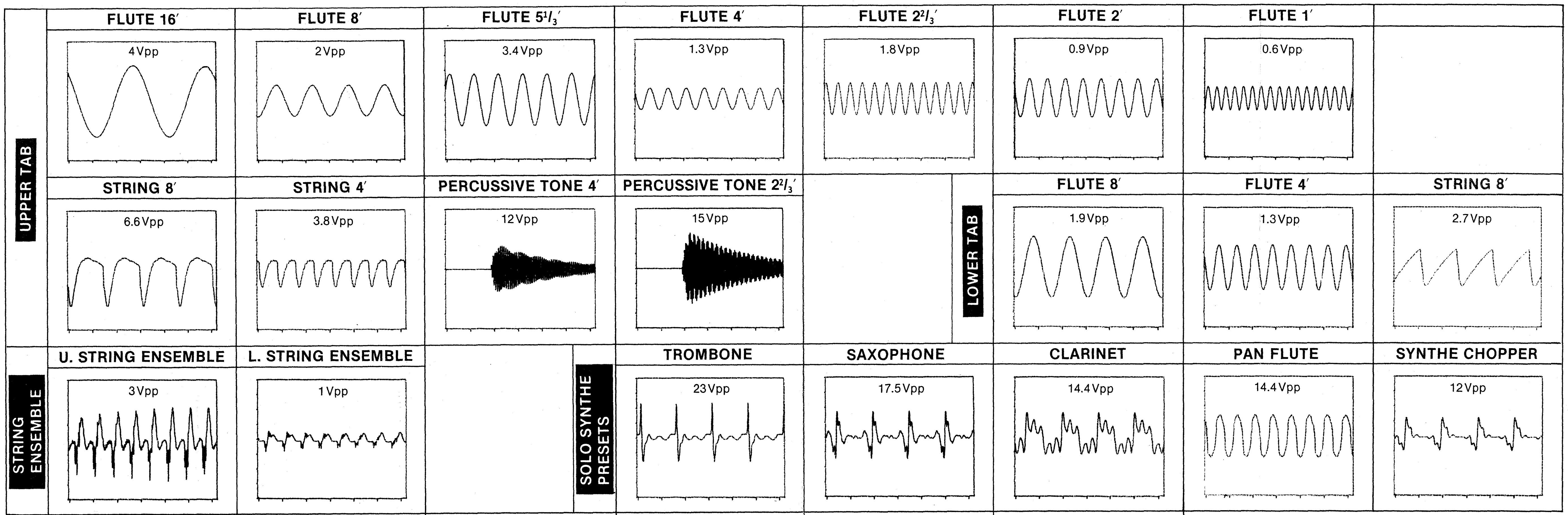
ACOUSTIC BASS

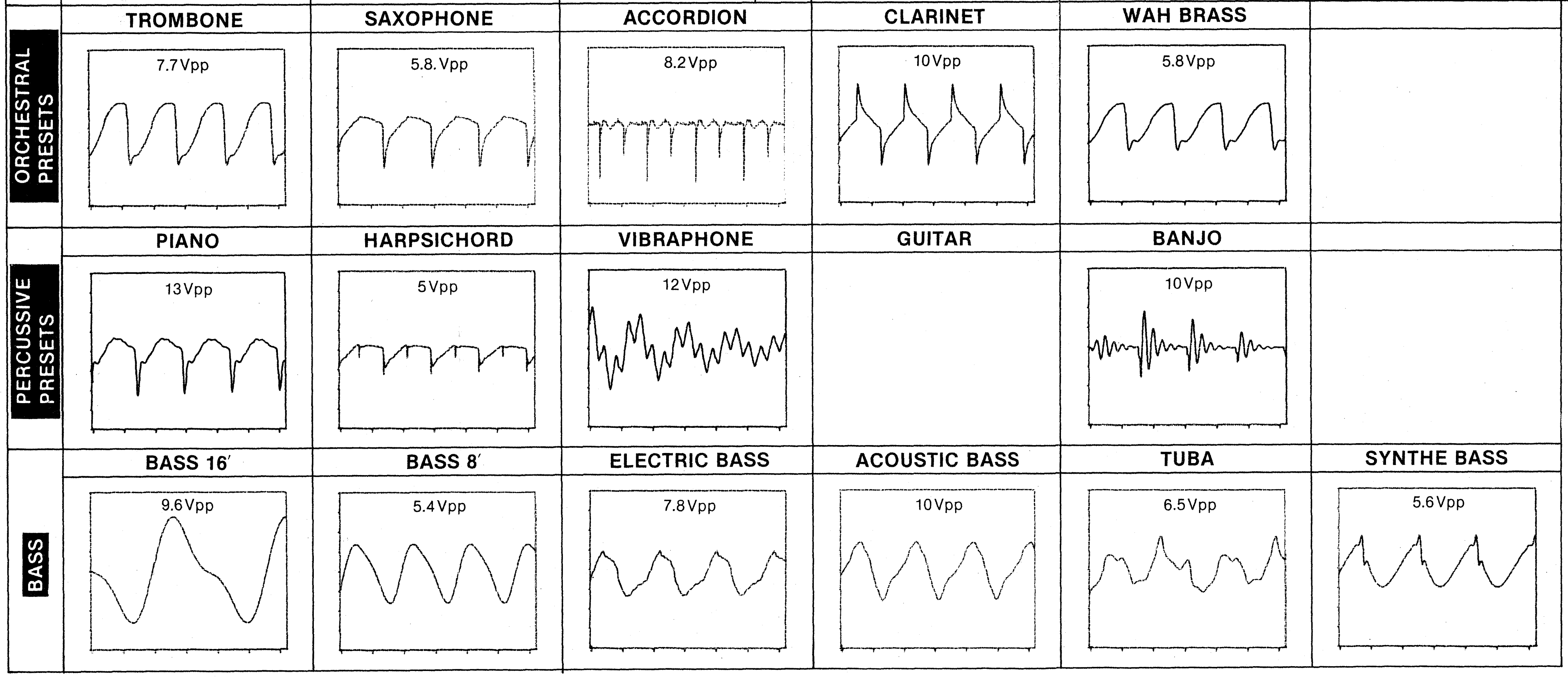




SX-E55 OUTPUT WAVEFORMS

The waveform shown below may somewhat change due to variation of the products.





■ Measuring Conditions

Main volume	Max
Expression pedal	Max
Other volumes	Full or Max
Press Key: Upper	C3 key
Lower	C3 key
Pedal	A1 key

■ Measuring Terminals

Upper Tab	*20cm speaker
Lower Tab	30cm speaker SP1
String Ensemble	30cm speaker SP1
Solo Synthe Presets	*20cm speaker
Orchestral Presets	30cm speaker SP1
Percussive Presets	*20cm speaker
Bass	30cm speaker SP1

*20cm speaker: SP2 ⊕ terminal~SP3 ⊖ terminal

REPLACEMENT PARTS LIST...Electrical Parts

Notes:

1. Printed circuit boards are supplied only during the period of production.
   Tone generator module P.C.B. (SXPG11265) and Musical display P.C.B. (SXEG20A), are supplied the same as for ordinary electrical parts.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

■ ELECTRICAL PARTS

PRINTED CIRCUIT BOARDS

	Part No.	Description	Per/Set
○	SXPGB11741	Tone Generator	1
○	SXPG11265	Tone Generator Module	1
○	SXPGA11741	Organ	1
○	SXPG11293	Percussive Tone	1
○	SXPGA11791	Percussive Presets	1
○	SXPGA11302	Orchestral Presets	1
○	SXPG11683	Accompaniment	1
○	SXPG11276	System Assigner	1
○	SXPG11321	Solo Synthe Presets	1
○	SXPGB11302	Selecter	1
○	SXPG11322	Bass	1
○	SXPG11311	Drum Percussion	1
○	SXPGA11343	Tremolo & Phaser Modulation	1
○	SXPGB11342	Celeste & String Ensemble	1
○	SXPGB11791	Mixing	1
○	SXPG11362	Mother Board	1
○	SXPGA11442	Control Panel Switch Left	1
○	SXPGB11441	Control Panel Switch Right	1
○	SXPG11422	Upper Control Panel Left	1
○	SXPG11781	Upper Control Panel Right	1
○	K80VPB2A	Lower Keyboard	1
○	K80VPB4A	Upper Keyboard	1
	SXPG11701	Pedal Keyboard	1
○	SXPG11522	Jack, Except for (MC)	1
○	SXPG11524	Jack, (MC) only	1
○	SXPG11802	Network	1
○	SXEG20A	Musical Display Module	1
	SXPG10322	Expression	1
○	SXPG11732	Power Supply	1
○	SXPG11551	Amp & Power Supply	1
○	SXPG11552	Amp & Power Supply, (MC, XT) only	1
○	SXPG11581	AC Power Supply, (Europe) only	1
○	SXPG11583	AC Power Supply, (EK, XL, XR, XS, X, XX, XV) only	1
○	SXPG11592	AC Power Supply, (MC, XT) only	1

INTEGRATED CIRCUIT

	Part No.	Description		Per/Set
○	SVIG3256PC37	256K Bit Mask ROM	SAS	1
○	SVIGM512820R	16K Bit CMOS Static RAM	SAS	1
○	SVIG23128196	128K Bit Mask Programmable ROM	SPS	1
○	SVIG2364096	64K Bit Mask Programmable ROM	BAS	1
○	SVIG3256PC35	256K Bit Mask ROM	DP	1
○	SVIG3256PC36	256K Bit Mask ROM	DP	1
○	SVIG7811G028	1 Chip, 8-bit Microcomputer	SAS	1
○	SVIGM8041111	1 Chip, 8-bit Microcomputer	OPS	1
○	SVIG8049569	1 Chip, 8-bit Microcomputer	SPS, BAS	2
○	SVIG65002014	Gate Array (LAS)	SAS	1
○	SVIG65002017	Gate Array (DAC)	SAS	1
○	SVIG65002018	Gate Array	SEL	1
○	SVIG65002019	Gate Array	SPS, BAS	2
○	SVIG65010021	Gate Array	DP	1
	SVIGM74LS00	Quadruple 2-Input Positive NAND Gates	SAS	1
	SVIGM74LS02	Quadruple 2-Input Positive NOR Gates	SAS	1
	SVIGM74LS05	Hex Inverter with Open Collector Output	JACK	1
	SVIGM74LS32	Quadruple 2-Input Positive OR Gates	SAS	1
	SVIGM74LS138	Decoder	SAS	1
	SVIGMSM4011	Quadruple 2-Input NAND Gates	LPM, CSM	9
	SVIGTC40H002	Quadruple 2-Input Positive NOR Gates	ACC	1
	SVIGTC40H004	Hex Inverters	SAS, TG, OPS	3
○	SVIGTC40H374	Octal D-Type Flip-Flops	ACC, PPS	3
	SVIGTC40H393	4-bit Binary Counter	TG	1
	SVIGTC4013BP	Dual D-Type Flip-Flops	ACC	1
	SVIGTC40174B	Hex D-Type Flip-Flops	PCT	1
○	SVIGTC4053BP	2-Channel Multiplexer	OPS	1
	SVIGHD14051B	8-Channel Multiplexer	OPS	1
○	SVIGHD14046B	Phase-Locked Loop	SPS, BAS	2
	SVIGM53217	Hex Buffers (Open Collector)	—	18
○	SVIGM53216	Hex Inverters	SAS, ACC	2
○	SVIGM5218L	Operational Amplifier	—	87
○	SVIGNJM082D	Operational Amplifier	—	4
	SVIGUPC624C	8-bit D-A Converter	SPS, BAS, DP	3
	SVIGBA6110	VCA (Voltage Controlled Amplifier)	—	17
○	SVIGBA6704	VCF (Voltage Controlled Filter)	ACC, OPS	2
	SVIGUPD4066B	Quadruple Bilateral Switch	—	17
	SVIGLM1894N	Noise Reduction	MIX, NR	3
○	MN15621GSA	4 Bit 1 Chip Microcomputer	—	7
	MN3006	BBD for Audio Signal Delays (128-stage)	LPM, CSM	5
	MN3004	BBD for Audio Signal Delays (512-stage)	CSM	3
	AN6913	Dual Comparator	MIX, LPM	2
	AN6552F	Operational Amplifier	SPS, BAS	2
	AN7060	Power Amp Driver	AS	2
	AN7815	Voltage Regulator	PS	1
○	AN7824	Voltage Regulator	AS	1
○	SVIGSI3052P	Voltage Regulator	AS	2
	SVIGUPC7915H	Voltage Regulator	PS	1
○	SVIGUPC7924H	Voltage Regulator	AS	1
○	SVIGSTK2028	Power IC	AS	1

TRANSISTORS

	Part No.	Description	Per/Set
	2SA830B		16
	2SA1015GR		20
	2SA1123R		2

	Part No.	Description	Per/ Set
○	2SB950QR		1
	2SC1047C		14
	2SC2320LFG		27
○	2SC1685R		1
	2SD1276QR		1
○	2SJ40CD	FET	11
○	2SK381CD	FET	2

DIODES

S	MA162A	MA150IR	117
○	MA165TA5VT		138
	MA1062	Zener	2
○	MA1270	Zener	2
	SVDS2V20 ⚠	Rectifier	4
	SVDS3V20 ⚠	Rectifier	4
	SVDGSM1A02LF	Rectifier	1

COILS, QUARTZ & CERAMIC OSCILLATOR

○	SVQG43U1200A	12 MHz, Quartz Oscillator	1
○	EF0A4R5M01A	4.5 MHz, Ceramic Oscillator	7
○	SVQGCSA110MT	11 MHz, Ceramic Oscillator	2
○	SVQGCSA600MT	6 MHz, Ceramic Oscillator	1
○	SLCSC331KU	0.33 mH Coil (Network)	1
○	SLCSC561KU	0.56 mH Coil (Network)	1
○	ELQS180KB	18 μH, Coil (Master Clock OSC)	2

LED'S, LAMP

	LN29RP	LED, Power Indicator	1
○	SEL2210SLFM1	LED (red)	126
○	SEL2710KLFM1	LED (yellow)	11
	XAMR55P	Lamp, Expression	1

CDS

	SVEG5	Light Sensitive Device	1

SWITCHES

○	ESB90712V ⚠	Power Switch	1
	ESE3758 ⚠	Voltage Selector (EK, X, XL, XX, XV, XS, XR) only	1
○	SSHG1029A	Switch, for Tang Type	44
○	SSHG1030A	Switch, for Push Type	118
	SSSG2001A	Line Out Channel Selector SW.	1

VARIABLE RESISTORS

○	EVD3520B24G	20 KΩB, Tempo Control	1
○	EWHD5A576A54	50 KΩA, Mic Volume	1

SEMI-FIXED RESISTORS

○	EVN60AA00B54	50 KΩ	2
○	EVN60AA00B24	20 KΩ	6
○	EVN60AA00B53	5 KΩ	1
○	EVN60AA00B23	2 KΩ	2
○	EVN60AA00B14	10 KΩ	2

	Part No.	Description	Per/ Set

COMPONENTS COMBINATIONS

○	SREG8A0462M	Custom Block Resistor	1
○	EXBP84222MM	2.2 KΩ×4, Block Resistor	1
○	EXBP84103MM	10 KΩ×4, Block Resistor	1
○	EXBP86103MM	10 KΩ×6, Block Resistor	1
○	EXBP86122MM	1.2 KΩ×6, Block Resistor	1
○	EXBP88222MM	2.2 KΩ×8, Block Resistor	4
○	EXBP88472MM	4.7 KΩ×8, Block Resistor	3
○	EXBP88103MM	10 KΩ×8, Block Resistor	2
○	EXBP88223MM	22 KΩ×8, Block Resistor	1
○	EXBP88334MM	330 KΩ×8, Block Resistor	1
○	EXBP88105MM	1 MΩ×8, Block Resistor	2
○	EXATA223S	Noise Suppression Filter	8

JACKS

○	SJJG210A	Mic Jack	1
○	SJJG220A	Aux Jack, Except for (MC)	1
○	SJJG230A	Line Out Terminals	1
○	SJJG240A	Headphone Jack	1
○	SJJG250A	FD Jack	1

RELAYS

○	SSYGMR5212S		3

SPEAKERS

○	EAS30PL110S	30 cm, 6Ω	1
○	EAS20PM223SA	20 cm, 4Ω	2
○	EAS6HH11S	6 cm, 6Ω	2

FUSES

	XBA2C40TR0 ⚠	4 A, 250 V } Products for Europe only	1
	XBA2C12TR0 ⚠	1.25 A, 250 V	1
	XBA2C40TR0 ⚠	4 A, 250 V } Products for [XL, XR, XS, X, XX, XV, EK] only	1
	XBA2C31TR0 ⚠	3.15 A, 250 V	1
	XBA2C12TR0 ⚠	1.25 A, 250 V	2
	XBA1F30NU14 ⚠	3 A, 125 V [MC, XT] only	1

TRANSFORMERS, LINE FILTER

○	SLTG5Q22 ⚠	Power Transformer	1
○	SLTG5Q23 ⚠	Power Transformer, (MC, XT) only	1
	SLTA6X1-D ⚠	Line Filter	1

AC CORD, PLUG

	SJAG24 ⚠	AC Cord	1
	SJAG23 ⚠	AC Cord, (XL, XR) only	1
	SJAG22 ⚠	AC Cord, (MC, XT) only	1
	SJAG25 ⚠	AC Cord, (EK, XS) only	1
	SJP5213-1 ⚠	Attachment plug, (X, XX, XV) only	1

	Part No.	Description	Per/ Set
ASSEMBLY PARTS			
	SXVG5020A	Expression Unit	1
○	SJUG25005N	Reverb Unit	1
	SHRG7150A	Cushion for Reverb Unit	2
WIRING PARTS (See wiring connection diagram on page II-3, II-4.)			
○	SWKG029ZA	Connector, with Wire	1
○	SWKG0419LSA	Connector, with Wire, Except for (MC)	1
○	SWKG0428LSA	Connector, with wire, (MC) only	1
○	SWKG0312LSA	Connector, with Wire	1
○	SWKG0317LSB	Connector, with Wire	1
○	SWKG0814LSC	Connector, with Wire	1
○	SWKG0825LSA	Connector, with Wire	1
○	SWKG104ZA	Connector, with Wire	1
○	SWKG135LSB	Connector, with Wire	1
○	SWKG0413ZC	Connector, with Wire	1
○	SWKG0413ZD	Connector, with Wire	1
○	SWKG056ZC	Connector, with Wire	1
○	SWKG0620ZA	Connector, with Wire	1
○	SWEG50A	Connector, with Wire	1
○	SWKG0210ZA	Connector, with Wire (X, XS, XL, XR, XX, XV, EK) only	1

■ Numbering System of Resistor

Resistor Type	Wattage	Tolerance
ERD : Carbon	S2 : 1/4W	F : ±1%
ERD—F : Carbon Flame-Proof	2 : 1/4W	G : ±2%
	10 : 1/8W	J : ±5%
ERO : Metal Film	25 : 1/4W	K : ±10%
	50 : 1/2W	
ERG : Metal Oxide	1 : 1W	
ERQ : Fuse Type Metal	2 : 2W	

Example

ERD	S2	T	J	101	
Type	Wattage	Shape	Tolerance	Value	
ERD	2	F	C	G	101
Type	Wattage	Flame Proof	Fuse Type	Tolerance	Value
ERO	10	T	K	F	2201
Type	Wattage	Shape	Peculiarity	Tolerance	Value
ERG	1	AN	J	121	
Type	Wattage	Shape	Tolerance	Value	
ERQ	1	C	K	P	R33
Type	Wattage	Flame Proof	Tolerance	Shape	Value

■ Numbering System of Capacitor

Capacitor Type	Symbol Mark	Voltage		Tolerance
		ECEA Type	Others	
ECEA : Electrolytic		0J : 6.3V	1H : 50V DC	ECEA Type : ±20%
ECEA—N : Non-Polar Electrolytic	Ⓝ	1A : 10V	1E : 25V DC	J : ±5%
ECEA—Y : Non-Polar Electrolytic	Ⓨ	1C : 16V		K : ±10%
ECEA—M : Electrolytic, MSR Series	(MS)	1E : 25V		M : ±20%
ECEA—Z : Electrolytic, Z Series	Ⓩ	1V : 35V		
ECQV : TF Capacitor	(TF)	1H : 50V		
ECC : Ceramic	○	50Y : 50V		
ECK : Ceramic	○	50M : 50V		
ECQM : Polyester		16M : 16V		
		50Z : 50V		

Example

ECEA	0J	U	330	
Type	Voltage	Peculiarity use	Value	
ECEA	50	M (Z)	R47	R
Type	Voltage	Peculiarity use	Value	Special use
ECQV (M)	1H	102	J	
Type	Voltage	Value	Tolerance	
ECC (K)	R	1H	220	J
Type	Shape	Voltage	Value	Tolerance

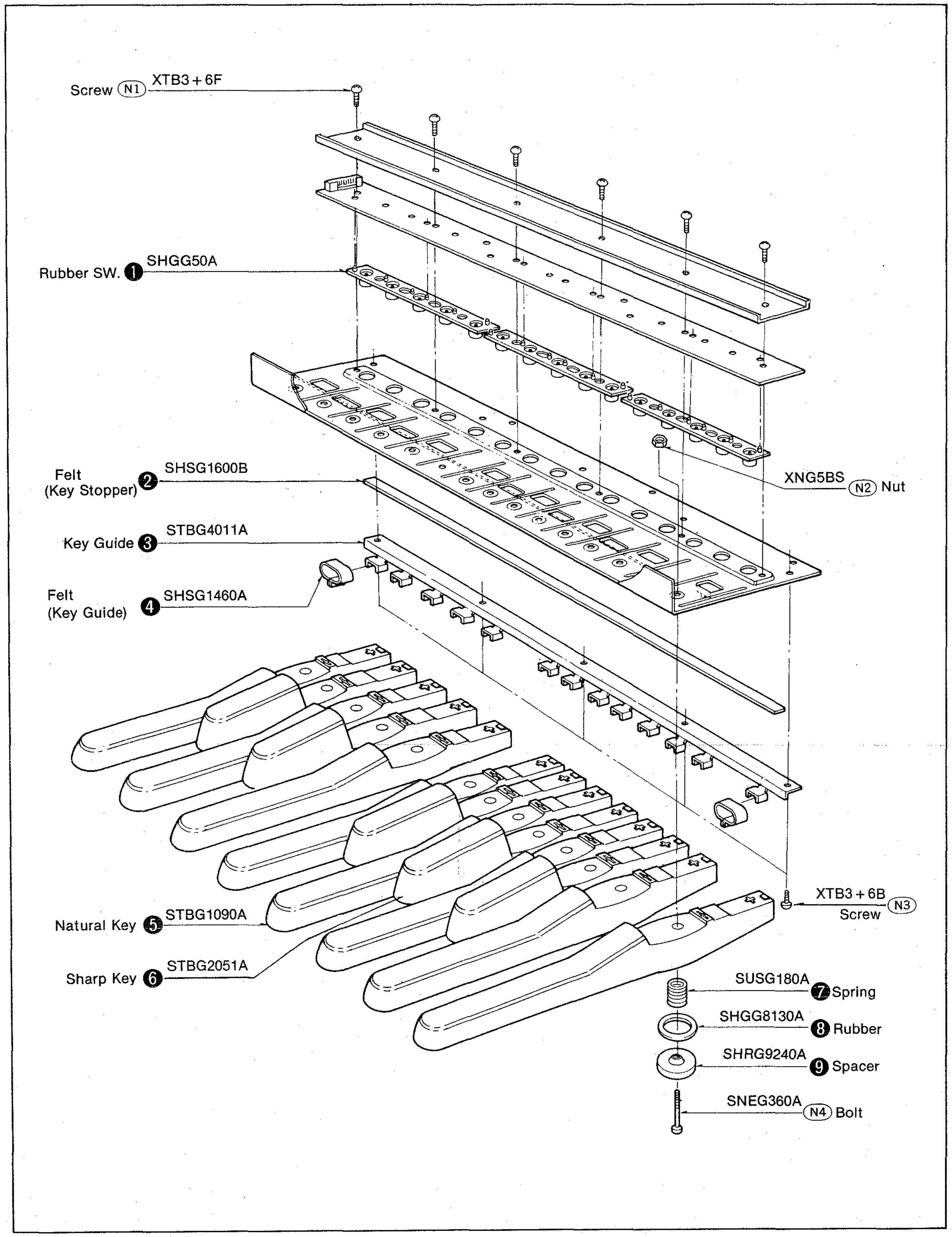
Part No.	Description	Per/ Set
RESISTORS		
ERDS2TJ100	10Ω	
ERDS2TJ120	12Ω	
ERDS2TJ150	15Ω	
ERDS2TJ180	18Ω	
ERDS2TJ220	22Ω	
ERDS2TJ270	27Ω	
ERDS2TJ330	33Ω	1
ERDS2TJ390	39Ω	
ERDS2TJ470	47Ω	48
ERDS2TJ560	56Ω	
ERDS2TJ680	68Ω	
ERDS2TJ820	82Ω	
ERDS2TJ101	100Ω	6
ERDS2TJ121	120Ω	
ERDS2TJ151	150Ω	
ERDS2TJ181	180Ω	
ERDS2TJ221	220Ω	2
ERDS2TJ271	270Ω	
ERDS2TJ331	330Ω	12
ERDS2TJ391	390Ω	
ERDS2TJ471	470Ω	9
ERDS2TJ561	560Ω	2
ERDS2TJ681	680Ω	9
ERDS2TJ821	820Ω	1
ERDS2TJ102	1KΩ	58
ERDS2TJ122	1.2KΩ	75
ERDS2TJ152	1.5KΩ	4
ERDS2TJ182	1.8KΩ	
ERDS2TJ222	2.2KΩ	34
ERDS2TJ272	2.7KΩ	2
ERDS2TJ332	3.3KΩ	51
ERDS2TJ392	3.9KΩ	
ERDS2TJ472	4.7KΩ	122
ERDS2TJ562	5.6KΩ	1
ERDS2TJ682	6.8KΩ	28
ERDS2TJ822	8.2KΩ	7
ERDS2TJ103	10KΩ	109
ERDS2TJ123	12KΩ	21
ERDS2TJ153	15KΩ	56
ERDS2TJ183	18KΩ	21
ERDS2TJ223	22KΩ	62
ERDS2TJ273	27KΩ	25
ERDS2TJ333	33KΩ	66
ERDS2TJ393	39KΩ	21
ERDS2TJ473	47KΩ	88

	Part No.	Description	Per/ Set
	ERDS2TJ563	56KΩ	27
	ERDS2TJ683	68KΩ	44
	ERDS2TJ823	82KΩ	22
	ERDS2TJ104	100KΩ	83
	ERDS2TJ124	120KΩ	19
	ERDS2TJ154	150KΩ	77
	ERDS2TJ184	180KΩ	18
	ERDS2TJ224	220KΩ	45
	ERDS2TJ274	270KΩ	1
	ERDS2TJ334	330KΩ	15
	ERDS2TJ394	390KΩ	
	ERDS2TJ474	470KΩ	29
	ERDS2TJ564	560KΩ	1
	ERDS2TJ684	680KΩ	4
	ERDS2TJ824	820KΩ	
	ERDS2TJ105	1MΩ	18
	ERDS2TJ125	1.2MΩ	
	ERDS2TJ155	1.5MΩ	2
	ERDS2TJ185	1.8MΩ	
	ERDS2TJ225	2.2MΩ	2
	ERDS2TJ275	2.7MΩ	
	ERDS2TJ335	3.3MΩ	
	ERDS2TJ395	3.9MΩ	
	ERDS2TJ475	4.7MΩ	
	ERDS2TJ565	5.6MΩ	
	ERDS2TJ685	6.8MΩ	
	ERDS2TJ825	8.2MΩ	
⚠	ERG1ANJ121	🄵 1W 120Ω	1
⚠	ERG1ANJ431	🄵 1W 430Ω	1
⚠	ERD25FVJ4R7	🄵 1/4W 4.7Ω	2
⚠	ERD25FVJ470	🄵 1/4W 47Ω	2
⚠	ERD2FCG220	🄵 1/4W 22Ω, Fuse Type	20
⚠	ERD2FCG100	🄵 1/4W 10Ω, Fuse Type	22
⚠	ERD2FCG110	🄵 1/4W 100Ω, Fuse Type	1
⚠	ERD2FCJ4R7	🄵 1/4W 4.7Ω, Fuse Type	12
⚠	ERD2FCG6R8	🄵 1/4W 6.8Ω, Fuse Type	2
⚠	ERQ1CKPR33	🄵 1W 0.33Ω, Fuse Type	1
⚠	ERD50FJ471	🄵 1/2W 470Ω	2
⚠	ERD50FJ331	🄵 1/2W 330Ω	2
	ERO10TKF2201	1/8W, 2.2KΩ, ±1%	2

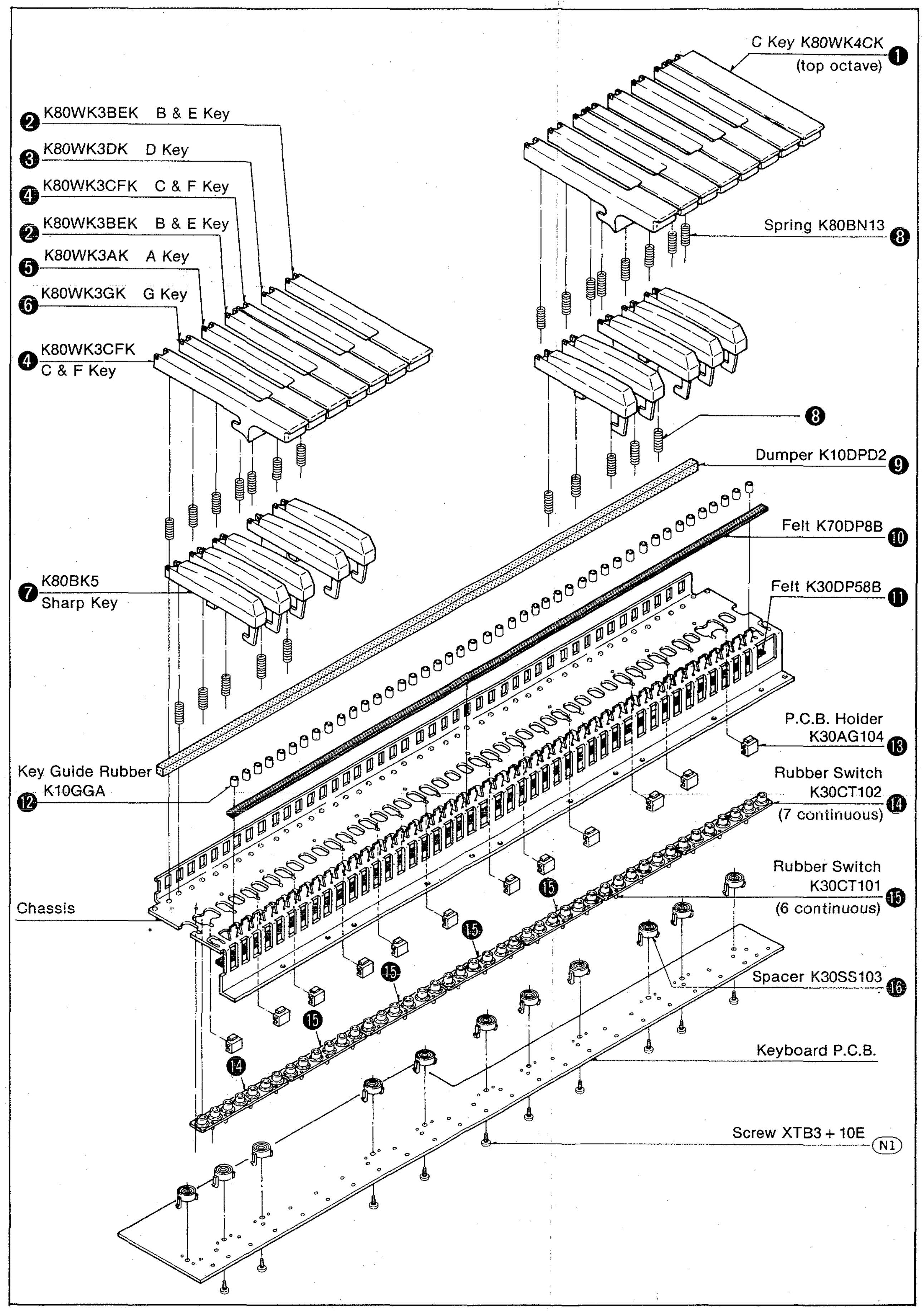
CAPACITORS

	Part No.	Description	Per/ Set
	ECEA0JU330	6.3V, 33µF	2
	ECEA0JU470	6.3V, 47µF	2
	ECEA0JU101	6.3V, 100µF	4
	ECEA0JU221	6.3V, 220µF	4
	ECEA1CU100	16V, 10µF	9
	ECEA1CK470	16V, 47µF	12
	ECEA1CU101	16V, 100µF	20
	ECEA1CU331	16V, 330µF	1
	ECEA1EU4R7	25V, 4.7µF	2
	ECEA1EU330	25V, 33µF	27
	ECEA1EU470	25V, 47µF	16
	ECEA1EU222	25V, 2200µF	2
	ECEA1VU100	35V, 10µF	2
	ECEA1HK0R1	50V, 0.1µF	7
	ECEA1HUR47	50V, 0.47µF	14
	ECEA1HU010	50V, 1µF	31
	ECEA1HU2R2	50V, 2.2µF	6
	ECEA1HU3R3	50V, 3.3µF	1
	ECET50R472SW	50V, 4700µF	2
	ECEA1HN010S	Ⓝ 50V, 1µF	25
	ECEA50Y3R9	Ⓨ 50V, 3.9µF	1
	ECEA50Y4R7	Ⓨ 50V, 4.7µF	1
	ECEA50ZR1	Ⓩ 50V, 0.1µF	5
	ECEA50ZR22	Ⓩ 50V, 0.22µF	3
	ECEA50ZR33	Ⓩ 50V, 0.33µF	1
	ECEA50ZR68	Ⓩ 50V, 0.68µF	4
	ECEA16M10R	(MS) 16V, 10µF	8
	ECEA50M1R	(MS) 50V, 1µF	4
	ECEA50M2R2R	(MS) 50V, 2.2µF	1
	ECQM1H102KV	0.001µF	58
	ECQM1H152KV	0.0015µF	18
	ECQM1H222KV	0.0022µF	18
	ECQM1H332KV	0.0033µF	11
	ECQM1H472KV	0.0047µF	43
	ECQM1H682KV	0.0068µF	16
	ECQM1H103KV	0.01µF	32
	ECQM1H153KV	0.015µF	9
	ECQM1H223KV	0.022µF	8
	ECQM1H333KV	0.033µF	10
	ECQM1H473KV	0.047µF	20
	ECQM1H683KV	0.068µF	12
	ECQM1H104KV	0.1µF	4
	ECQM1H474KV	0.47µF	1
	ECQV1H102JZ	(TF) 0.001µF	12
	ECQV1H103JZ	(TF) 0.01µF	14
	ECQV1H152JZ	(TF) 0.0015µF	10
	ECQV1H153JZ	(TF) 0.015µF	8
	ECQV1H222JZ	(TF) 0.0022µF	14
	ECQV1H223JZ	(TF) 0.022µF	4
	ECQV1H332JZ	(TF) 0.0033µF	8
	ECQV1H333JZ	(TF) 0.033µF	2
	ECQV1H472JZ	(TF) 0.0047µF	13
	ECQV1H473JZ	(TF) 0.047µF	6
	ECQV1H682JZ	(TF) 0.0068µF	13
	ECQV1H104JZ	(TF) 0.1µF	10
	ECQV1H154JZ	(TF) 0.15µF	2
	ECQV1H224JZ	(TF) 0.22µF	3
	ECQV1H334JZ	(TF) 0.33µF	5
	ECQV1H474JZ	(TF) 0.47µF	3
	ECQV1H683JZ	(TF) 0.068µF	3
	ECCR1H220J5	○ 22PF	12
	ECCR1H330J5	○ 33PF	16
	ECCR1H470J5	○ 47PF	5
	ECCR1H680J5	○ 68PF	4
	ECCR1H101J5	○ 100PF	40
	ECCR1H151J5	○ 150PF	12
	ECCR1H221J5	○ 220PF	17
	ECCR1H331J5	○ 330PF	13
	ECCR1H471J5	○ 470PF	26
	ECCR1H681J5	○ 680PF	16
	ECKR1E473ZV	○ 0.047µF	105
⚠	ECKCVA1472MF	○ 4700PF, Line Capacitor	1
⚠	ECQU1A103MH	0.01µF, 125V, Across-the-Line Capacitor (MC)	1
⚠	ECQU2A103MF	0.01µF, 250V, Across-the-Line Capacitor	1
	EECW2R3A3R3	3.3F, 2.3V, Liquid Electrolyte Double layer	3

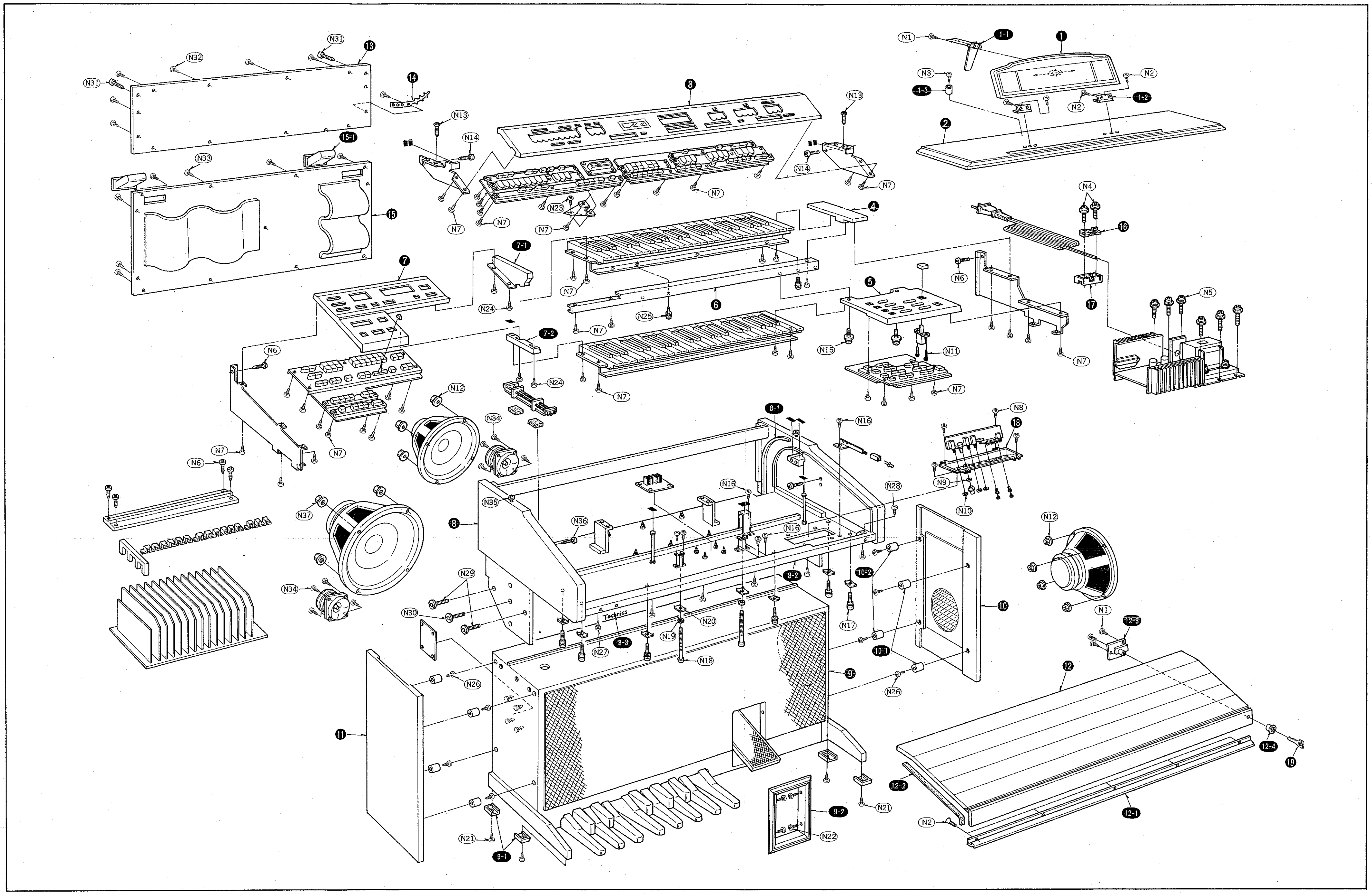
EXPLODED VIEWS OF PEDAL KEYBOARD


Screw (N1) XTB3 + 6F
Rubber SW. ❶ SHGG50A
Felt (Key Stopper) ❷ SHSG1600B
XNG5BS (N2) Nut
Key Guide ❸ STBG4011A
Felt (Key Guide) ❹ SHSG1460A
XTB3 + 6B (N3) Screw
Natural Key ❺ STBG1090A
Sharp Key ❻ STBG2051A
SUSG180A ❼ Spring
SHGG8130A ❽ Rubber
SHRG9240A ❾ Spacer
SNEG360A (N4) Bolt

EXPLODED VIEWS OF MANUAL KEYBOARD


C Key K80WK4CK (top octave) ❶
❷ K80WK3BEK B & E Key
❸ K80WK3DK D Key
❹ K80WK3CFK C & F Key
❷ K80WK3BEK B & E Key
❺ K80WK3AK A Key
❻ K80WK3GK G Key
❹ K80WK3CFK C & F Key
Spring K80BN13 ❽
❽
Dumper K10DPD2 ❾
Felt K70DP8B ❿
❼ K80BK5 Sharp Key
Felt K30DP58B ⓫
P.C.B. Holder K30AG104 ⓭
Key Guide Rubber ⓬ K10GGA
Rubber Switch K30CT102 (7 continuous) ⓮
Rubber Switch K30CT101 (6 continuous) ⓯
Chassis
⓯
⓯
⓯
⓯
⓮
Spacer K30SS103 ⓰
Keyboard P.C.B.
Screw XTB3 + 10E (N1)

EXPLODED VIEWS OF CABINET



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REPLACEMENT PARTS LIST...Mechanism

■ MECHANICAL PARTS

	Ref. No.	Part No.	Description	Per/ Set
			CABINET	
○	1.	SKGG2K30B	Music Rack Assembly	1
	1-1	SBLG7	Stay	1
	1-2	SBHG5003	Hinge	2
○	1-3	SHGG9040A	Catch Rubber	1
○	2	SKPG440A	Top Cover	1
○	3	SGWG1360A	Upper Control Panel	1
○	4	SGWG5090A	Upper Right End Cover Panel	1
○	5	SGWG3120A	Lower Right End Cover Panel	1
○	6	SGXG1030AS	Ornament Panel for Lower Keyboard	1
○	7	SYWG8010A	Left End Cover Panel	1
○	7-1	SGEG180A	Ornament	1
○	7-2	SGEG160A	Ornament	1
○	8	SKMG720AS	Cabinet, Upper Unit	1
○	8-1	SKEG7340A	Sliding Cover Guide	2
○	8-2	SGXG1060A	Front Panel	1
	8-3	SGBS14	Technics Badge	1
○	9	SKMG730AS	Cabinet, Lower Unit	1
○	9-1	SHRG2080A	Foot	4
○	9-2	SGXG1100A	Expression Ornament	1
○	10	SKZGA202A	Side Panel (Right)	1
	10-1	SHGG9040B	Catch Rubber (Black)	2
	10-2	SHGG9040A	Catch Rubber (Brown)	2
○	11	SKZGA192A	Side Panel (Left)	1
○	12	SKZG8170A	Sliding Cover Assembly	1
○	12-1	SGXG413A	Aluminium Ornament	1
○	12-2	SHSG1600A	Felt	2
○	12-3	SBEG30A	Lock	1
○	12-4	SBEG40A	Staple	1
○	13	SKZG7280B	Rear Panel (Upper)	1
	14	SHRG104	Cord Band	1
○	15	SYUG1040A	Rear Panel (Lower)	1
○	15-1	SKHG30A	Handle	2
	16	SHRG1120A	AC Cord Clamper	1
	17	SHRG1110A	AC Cord Clamper	1
○	18	SMKG1581A	Jack Panel	1
			ACCESSORIES	
○	19	SBEG60A	Key	1
		SBEG20A	Hexagonal Rod Wrench	1
			BENCH	
○	SZ-CM14A			1
○	SZ-CM24A		(EG) only	1

MC Products for Canada only

	Ref. No.	Part No.	Description	Per/ Set
			CABINET [MC]	
○	1	SKGG2L20A	Music Rack Assembly	1
	1-1	SBLG7	Stay	1
	1-2	SBHG5003	Hinge	2
○	1-3	SHGG9040A	Catch Rubber	1
○	2	SKPG440B	Top Cover	1
○	3	SGWG1360B	Upper Control Panel	1
○	4	SGWG5090B	Upper Right End Cover Panel	1
○	5	SGWG3120B	Lower Right End Cover Panel	1
○	6	SGXG1030AS	Ornament Panel for Lower Keyboard	1
○	7	SYWG8010E	Left End Cover Panel	1
○	7-1	SGEG180B	Ornament	1
○	7-2	SGEG160B	Ornament	1
○	8	SKMG720BS	Cabinet, Upper Unit	1
○	8-1	SKEG7340A	Sliding Cover Guide	2
○	8-2	SGXG1060B	Front Panel	1
	8-3	SGBS14	Technics Badge	1
○	9	SKMG730BS	Cabinet, Lower Unit	1
○	9-1	SHRG2080A	Foot	4
○	9-2	SGXG1100A	Expression Ornament	1
○	10	SKZGA202B	Side Panel (Right)	1
	10-1	SHGG9040B	Catch Rubber (Black)	2
	10-2	SHGG9040A	Catch Rubber (Brown)	2
○	11	SKZGA192B	Side Panel (Left)	1
○	12	SKZG8170B	Sliding Cover Assembly	1
○	12-1	SGXG413A	Aluminium Ornament	1
○	12-2	SHSG1600A	Felt	2
○	12-3	SBEG30A	Lock	1
○	12-4	SBEG40A	Staple	1
○	13	SKZG7280B	Rear Panel (Upper)	1
	14	SHRG104	Cord Band	1
○	15	SYUG1040A	Rear Panel (Lower)	1
○	15-1	SKHG30A	Handle	2
	16	SHRG1120A	AC Cord Clamper	1
	17	SHRG1110A	AC Cord Clamper	1
○	18	SMKG1582B	Jack Panel	1
			ACCESSORIES	
○	19	SBEG60A	Key	1
		SBEG20A	Hexagonal Rod Wrench	1
			BENCH	
○	SZ-CM44B			1

	Ref. No.	Part No.	Description	Per/ Set
			SCREWS and WASHERS	
	N1	XTB3+10A	Screw	
	N2	XTS3+10AFVC	Screw	
	N3	XTB3+12AFZ	Screw	
	N4	XYN3+F20S	Screw with Washer	
	N5	XYN4+F12S	Screw with Washer	
	N6	XTB35+20A	Screw	
	N7	XTB4+12A	Screw	
	N8	XTB35+10A	Screw	
	N9	SNE4021-1	Screw	
	N10	XNS12FZ	Nut	
	N11	SNEG740A	Screw	
	N12	SNE491	Nut	
	N13	XTT4+12AFR	Screw	
	N14	XTB35+12A	Screw	
	N15	XYN4+F10S	Screw with Washer	
	N16	XTB35+8A	Screw	
	N17	XYN5+C25S	Screw with Washer	
	N18	XSN5+85S	Screw	
	N19	XWA5B	Washer	
	N20	SNEG150A	Washer	
	N21	XTB35+25A	Screw	
	N22	XTB3+14AFVC	Screw	
	N23	XTB35+10AFR	Screw	
	N24	XTB4+12G	Screw	
	N25	XYN5+C10S	Screw with Washer	
	N26	XTB3+14A	Screw	
	N27	XTT35+10AFVC	Screw	
	N28	XTB3+10AFVC	Screw	
	N29	SNEG750B	Bolt (red)	
	N30	SNEG750A	Bolt (black)	
	N31	XTC4+25AFVC	Screw	
	N32	XTT4+16AFVC	Screw	
	N33	XTT4+25AFVC	Screw	
	N34	XTT4+14AFVC	Screw	
	N35	XTT4+30A	Screw	
	N36	XTB35+35A	Screw	
	N37	SNE499-1	Nut	
			MANUAL KEYBOARDS	
○	1	K80WK4CK	Natural Key (Top Octave C Key)	1
○	2	K80WK3BEK	Natural Key (B and E Key)	7
○	3	K80WK3DK	Natural Key (D Key)	3
○	4	K80WK3CFK	Natural Key (C and F Key)	7
○	5	K80WK3AK	Natural Key (A Key)	4
○	6	K80WK3GK	Natural Key (G Key)	4
○	7	K80BK5	Sharp Key	18
○	8	K80BN13	Spring	44
	9	K10DPD2	Dumper	1
	10	K70DP8B	Felt	1
	11	K30DP58B	Felt	1
	12	K10GGA	Key Guide Rubber	44
	13	K30AG104	P.C.B. Holder	12
	14	K30CT102	Rubber Switch (7 continuous)	2
	15	K30CT101	Rubber Switch (6 continuous)	5
	16	K30SS103	Spacer	11
	N1	XTB3+10E	Screw	11

	Ref. No.	Part No.	Description	Per/ Set
			PEDAL KEYBOARD	
	1	SHGG50A	Rubber Switch (5 continuous)	3
	2	SHSG1600B	Felt (Key Stopper)	1
	3	STBG4011A	Key Guide	1
	4	SHSG1460A	Felt (Key Guide)	13
	5	STBG1090A	Natural Key	8
	6	STBG2051A	Sharp Key	5
	7	SUSG180A	Spring	13
	8	SHGG8130A	Rubber	13
	9	SHRG9240A	Spacer	13
	N1	XTB3+6F	Screw	6
	N2	XNG5BS	Nut	13
	N3	XTB3+6B	Screw	5
	N4	SNEG360A	Bolt	13

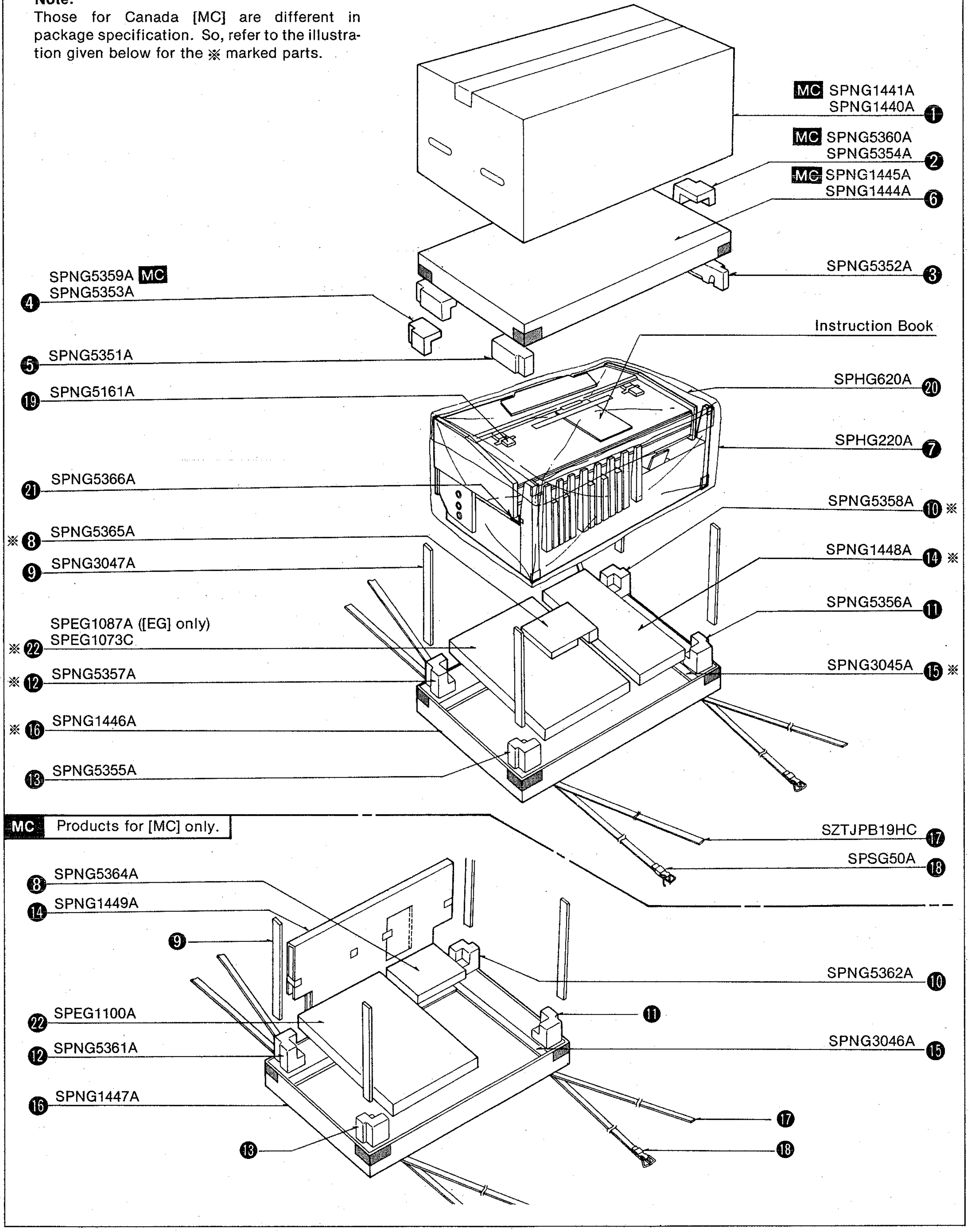
	Part No.	Description		Per/ Set
		SWITCH MOLD ASSEMBLY		
○	SSHG8013AA	upper harmonic coupler, volume slow attack, full, long		1
○	SSHG9019AA	upper tab voices, percussive tone		1
○	SSHG9028AA	string ensemble volume U & L percussive presets		1
○	SSHG9023AA	orchestral conductor		1
○	SSHG4011AA	vibrato, lower harmonic coupler, volume		1
○	SSHG9018AA	multi-tremolo, celeste, tab voices		1
○	SSHG9026AA	Voice Setting Computer, U & L orchestral presets, U & L solo synthesizer presets		1
○	SSHG9038AA	bass, rhythm selector, arrange percussion, rhythmic orchestra, drum percussion, tempo, tempo set, fill in & intro		1
○	SSHG6014AA	Program Chord Computer, techni-chord		1
○	SSHG5015AA	record, transpose, glide/rhythm, synchro, start/stop		1
○	SSHG9039AA	tuning, main volume, reverb, FSC, sustain		1
		KNOB		
	SBNG6010G	Slide Volume Knob, tempo control		1
	SBNG4010A	Mic Volume Knob		1
		BUTTONS		
	SBCG20I47	power switch		1
○	SBCG150G01	upper tab voices	upper orchestral conductor	1
○	SBCG140G01	percussive presets		1
○	SBCG140G03	orchestral presets		1
○	SBCG140G04	solo synthe presets		1
○	SBCG140G06	string ensemble		1
○	SBCG150H01	lower tab voices	lower orchestral conductor	1
○	SBCG140H01	percussive presets		1
○	SBCG140H03	orchestral presets		1
○	SBCG140H04	solo synthe presets		1
○	SBCG140H06	string ensemble		1

	Part No.	Description		Per/ Set
○	SBCG140L01	I	Voice Setting Computer	1
○	SBCG140L02	II		1
○	SBCG140L03	III		1
○	SBCG140L04	IV		1
○	SBCG140L05	V		1
○	SBCG140D01	cancel		1
○	SBCG140E01	trombone	U & L orchestral presets	1
○	SBCG140E02	saxophone		1
○	SBCG140E03	accordion		1
○	SBCG140E04	clarinet		1
○	SBCG140E05	wah brass		1
○	SBCG170G00	full		1
○	SBCG140F01	trombone	U & L solo synthesizer presets	1
○	SBCG140F02	saxophone		1
○	SBCG140F04	clarinet		1
○	SBCG140F06	pan flute		1
○	SBCG140F07	synthe chopper		1
○	SBCG170G00	volume		2
○	SBCG160E00	vibrato	multi-tremolo/vibrato	1
○	SBCG130D01	chorus/tremolo		1
○	SBCG130A12	U. tab voices		1
○	SBCG130A13	L. tab voices		1
○	SBCG130A12	U. tab voices	celeste	1
○	SBCG130E01	U & L orchestral presets		1
○	SBCG130F01	U & L solo synthe presets		1
○	SBCG130A13	L. tab voices		1
○	SBCG160K00	lower harmonic coupler		1
○	SBCG130A02	flute 8′	lower tab voices	1
○	SBCG130A04	flute 4′		1
○	SBCG130B01	string 8′		1
○	SBCG170G00	volume		2
○	SBCG130A01	flute 16′	upper tab voices	1
○	SBCG130A02	flute 8′		1
○	SBCG130A03	flute $5^{1}/_{3}$′		1
○	SBCG130A04	flute 4′		1
○	SBCG130A05	flute $2^{2}/_{3}$′		1
○	SBCG130A06	flute 2′		1
○	SBCG130A08	flute 1′		1
○	SBCG130B01	string 8′		1
○	SBCG130B02	string 4′		1
○	SBCG170G00	volume		2
○	SBCG160C00	slow attack		1
○	SBCG160J00	cancel	upper harmonic coupler	1
○	SBCG160K00	$2^{2}/_{3}$′, program		2
○	SBCG170G00	string ensemble volume		4
○	SBCG130A09	4′	percussive tone	1
○	SBCG130A10	$2^{2}/_{3}$′		1
○	SBCG130C01	click		1
○	SBCG170G00	full		1
○	SBCG160C00	long		1
○	SBCG140B03	piano	U & L percussive presets	1
○	SBCG140B04	harpsichord		1
○	SBCG140B05	vibraphone		1
○	SBCG140B08	guitar		1
○	SBCG140B09	banjo		1
○	SBCG170G00	full		1
○	SBCG140A04	bass 8′	bass	1
○	SBCG140A03	bass 16′		1
○	SBCG140B10	electric bass		1
○	SBCG140B11	acoustic bass		1

	Part No.	Description		Per/ Set
○	SBCG140F09	tuba	bass	1
○	SBCG140F08	synthe bass		1
○	SBCG170G00	volume		2
○	SBCG140A05	march	drum percussion selector	1
○	SBCG140C03	8 beat		1
○	SBCG140A08	ballad		1
○	SBCG140C05	rumba		1
○	SBCG140A11	mambo		1
○	SBCG140C07	waltz		1
○	SBCG140A12	tango		1
○	SBCG140C06	samba		1
○	SBCG140A10	bossanova I		1
○	SBCG140C04	disco I		1
○	SBCG140A07	16 beat		1
○	SBCG140C01	swing I		1
○	SBCG140B13	I	arrange percussion	1
○	SBCG140B14	II		1
○	SBCG170G00	volume	drum percussion	2
○	SBCG140K01	on		1
○	SBCG140J01	mellow		1
○	SBCG140B15	I/II	rhythmic orchestra	1
○	SBCG140E09	rhythmic		1
○	SBCG140E08	melodic		1
○	SBCG170G00	volume		2
○	SBCG140L00	tempo set		1
○	SBCG140K02	I	fill in & intro	1
○	SBCG140K03	II		1
○	SBCG140K04	cancel	Program Chord Computer	1
○	SBCG140J02	PCC		1
○	SBCG140J03	fingered		1
○	SBCG140A13	memory		1
○	SBCG140L08	close/open	techni-chord	1
○	SBCG140D02	on		1
○	SBCG140F10	record		1
○	SBCG140E10	transpose		1
○	SBCG140A14	glide/rhythm	drum percussion control	1
○	SBCG140A15	synchro		1
○	SBCG150G00	start/stop		1
○	SBCG160C00	free set	tuning	1
○	SBCG170G00	volume		2
○	SBCG160C00	on	sustain	3
○	SBCG170G00	volume		8
○	SBCG170G00	main volume, digital reverb		2
○	SBCG140L00	Fullband Setting Computer		1
○	SHRG9390A	Lever	Tang switch button	22
○	SHRG9400A	case		22
○	SHRG9410A	Lever	Push switch button	112
○	SHRG9430A	Lever (2 continuous)		3
○	SHRG9420A	Case		118
		INSTRUCTION BOOK		
○	SQFG1130	Instruction Book (ENGLISH, NORSK, SVENSKA, DANSK, SUOMI)		1
○	SQFG1140	Instruction Book (ENGLISH, DEUTSCH, FRANÇAIS, ESPAÑOL, NEDERLANDS)		1
○	SQFG1370	Instruction Book, (MC) only		1

PACKING

Note:
Those for Canada [MC] are different in package specification. So, refer to the illustration given below for the ※ marked parts.


MC SPNG1441A
SPNG1440A ❶
MC SPNG5360A
SPNG5354A ❷
MC SPNG1445A
SPNG1444A ❻
SPNG5352A ❸
SPNG5359A MC
❹ SPNG5353A
Instruction Book
❺ SPNG5351A
⓳ SPNG5161A
SPHG620A ⓴
SPHG220A ❼
㉑ SPNG5366A
SPNG5358A ❿ ※
※ ❽ SPNG5365A
❾ SPNG3047A
SPNG1448A ⓮ ※
SPNG5356A ⓫
SPEG1087A ([EG] only)
※ ㉒ SPEG1073C
SPNG3045A ⓯ ※
※ ⓬ SPNG5357A
※ ⓰ SPNG1446A
⓭ SPNG5355A
MC Products for [MC] only.
SZTJPB19HC ⓱
SPSG50A ⓲ ※
❽ SPNG5364A
⓮ SPNG1449A
❾
SPNG5362A ❿
⓫
㉒ SPEG1100A
⓬ SPNG5361A
SPNG3046A ⓯
⓰ SPNG1447A
⓱
⓭
⓲

PACKING PARTS LIST

Ref. No.		Part No.	Description	Per/ Set
			PACKING PARTS	
○		SPNGE55ED	Packing Parts Assembly	1
○	EG	SPNGE55EF	Packing Parts Assembly, (EG) only	1
○	1	SPNG1440A	Carton Box	(1)
○	2	SPNG5354A	Pad, Rear Right Side	(1)
○	3	SPNG5352A	Pad, Front Right Side	(1)
○	4	SPNG5353A	Pad, Rear Left Side	(1)
○	5	SPNG5351A	Pad, Front Left Side	(1)
○	6	SPNG1444A	Top Case	(1)
	7	SPHG220A	Polyethlene Bag	(1)
○	8 EG	SPNG5365A	Spacer, Except for (EG)	(1)
○	9	SPNG3047A	Prop	(4)
○	10	SPNG5358A	Pad, Rear Right Side	(1)
○	11	SPNG5356A	Pad, Front Right Side	(1)
○	12	SPNG5357A	Pad, Rear Left Side	(1)
○	13	SPNG5355A	Pad, Front Left Side	(1)
○	14	SPNG1448A	Packing, Side Panel	(1)
○	15	SPNG3045A	Frame	(1)
○	16	SPNG1446A	Bottom Case	(1)
	17	SZTJPB19HC	Band	(2)
	18	SPSG50A	Band	(2)
	19	SPNG5161A	Spacer, Top Cover	2
	20	SPHG620A	Protection Cover	1
○	21	SPNG5366A	Pad, Cabinet	2
○	22	SPEG1073C	Packing Parts Assembly Bench	1
	22	SPEG1087A	Packing Parts Assembly Bench, (EG) only	1

MC Products for Canada only

Ref. No.		Part No.	Description	Per/ Set
			PACKING PARTS MC	
○		SPNGE55EE	Packing Parts Assembly	1
○	1	SPNG1441A	Carton Box	(1)
○	2	SPNG5360A	Pad, Rear Right Side	(1)
○	3	SPNG5352A	Pad, Front Right Side	(1)
○	4	SPNG5359A	Pad, Rear Left Side	(1)
○	5	SPNG5351A	Pad, Front Left Side	(1)
○	6	SPNG1445A	Top Case	(1)
	7	SPHG220A	Polyethlene Bag	(1)
○	8	SPNG5364A	Spacer	(1)
○	9	SPNG3047A	Prop	(4)
○	10	SPNG5362A	Pad, Rear Right Side	(1)
○	11	SPNG5356A	Pad, Front Right Side	(1)
○	12	SPNG5361A	Pad, Rear Left Side	(1)
○	13	SPNG5355A	Pad, Front Left Side	(1)
○	14	SPNG1449A	Packing, Side Panel	(1)
○	15	SPNG3046A	Frame	(1)
○	16	SPNG1447A	Bottom Case	(1)
	17	SZTJPB19HC	Band	(2)
	18	SPSG50A	Band	(2)
	19	SPNG5161A	Spacer, Top Cover	2
	20	SPHG620A	Protection Cover	1
○	21	SPNG5366A	Pad, Cabinet	2
○	22	SPEG1100A	Packing Parts Assembly Bench	1